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SCHOLARLY ORIGINALITY IN ARCHITECTURE.

IT is often maintained by designers of more confidence in their own skill than reasoning power that originality in problems of architecture implies a total severance from certain forms the origin of which is lost in the mists of tradition. These would-be arbiters of taste attempt at recurring intervals to alienate the sympathies of their less fortunate brothers from a study of historical *motifs*; they proclaim their dangerous enthusiasm for fresh adventure, yet every departure they attempt from the sequence of legitimate tradition ends in a burlesque of that which they profess to abhor.

Two definitions can be given to the term "originality"—each qualifies the other. In the first instance, the power to visualise the arrangement and proportion of an object or a group of parts depends entirely on a gift of concentration together with a profound knowledge of innumerable examples of like dispositions subconsciously carried in the mind as records of innumerable other circumstances. These impressions stored in the mind are so dimmed and blurred, and withal so great is their number, that it is impossible for them to be distinctly remembered; but on this depends the very soul of originality.

In the second instance, originality implies the power to variously modify, to readapt, to give new life to familiar shapes, to skim the surface of things and grasp their spirit; moreover, it means the power to recast universally accepted forms to meet new conditions without recourse to either caricature or eccentricity. In other words, originality is common sense allied to dexterity. But there remains a test even more severe for the designer who attempts the slightest variation from the orthodox—he must compare his work with other works of the highest reputation, and he must look upon all the masters of the past as dangerous competitors. If this theory is carefully followed the individual will gradually acquire a standard of impeccable taste; he will likewise comprehend the value of constructive criticism, which no true artist despises. All progressive art must of necessity be original; it invariably responds to the temper and spirit of the age which produces it. Great crises in the affairs of nations are eminently beneficial to originality; they are productive of disciplined art, which, moreover, is shorn of that undue luxuriance accompanying lengthy periods of peaceful prosperity. A glance at the picture which the nineteenth century offers affords the best illustration of the fluctuation of artistic ideals.

There should be no confusion of the terms "genius" and "originality." We have it on the authority of one of the foremost English essayists that "genius or originality is, for the most part, some strong quality in the mind answering to and bringing out some new and striking quality in Nature." In the latter regard it can be rightly argued that tradition is a convention of Nature.

The highly-strung artist whose temperament directs him to a pursuit of the ideal is the best qualified to dwell on the possibilities of scholarly original design. His knowledge of past achievement, however, must be of such a depth as to enable him to reject any theory unsympathetic with tradition. The ordinary man who dreams of airy castles almost attains to the status of an original designer, but such a one lacks the power to carry the given feeling into other situations, to convey the impressions of his imagination to paper and from that to the concrete. There are no rules governing the law of originality. The workings of the intellect in such circumstances are entirely by sympathy; there must be a passionate interest in a subject, a strong element of dissatisfaction, an even stronger desire to emulate and improve upon that which excites the fancy. Without passion there can be no original interest, none of that subtle and elusive charm, the attribute of all great works of art, which scarcely ever exists in the works of the present age.

A short time ago a brilliant writer and art critic who had gained some notoriety in the public Press spoke to a gathering of architects. Most of the speaker's remarks were opposed to traditional sequence in the design of buildings; he ignored the theory of architectural composition, and bluntly told those present to be original. One illuminating sentence was, "Take ferro-concrete, and get something out of that." As a champion of the modern school of amateurs this critic's arguments sounded plausible; but he, like many other gifted critics, was incapable of realising that originality in design is a matter for slow development.

The Discourses of Sir Joshua Reynolds have stood the criticism of nearly a century and a half; nothing finer has been written on the subject of originality than certain of his remarks, which apply equally to architecture and painting.

In the second Discourse, given to the students of the Royal Academy, December 11, 1769, Sir Joshua said:—"A student unacquainted with the attempts of former adventurers is always apt to overrate his own abilities; to mistake the most trifling excursions for discoveries of moment, and every coast new to him for a new-found country. If by chance he passes beyond his usual limits he congratulates his own arrival at those regions which they who have steered a better course have long left behind them.

The productions of such minds are seldom distinguished by an air of originality—they are anticipated in their happiest efforts; and if they are found to differ in anything from their predecessors it is only in irregular sallies and trifling conceits. The more extensive, therefore, your acquaintance is with the works of those who have excelled the more extensive will be your powers of invention, and, what may appear still more like a paradox, the more original will be your conceptions. But the difficulty on this occasion is to determine what ought to be proposed as models of excellence and who ought to be considered as the properest guides."

All through the Discourses there are other remarks equally to the point, but none elucidating the theory of originality in a simpler way. To the foregoing can be added a saying of Coleridge's, namely:—"To admire on principle is the only way to imitate without loss of originality."

If we make a careful survey of English architecture during the past three centuries—apart from the question of revivals of dissimilar styles—we find an amazing variety of forms not only in the development of composition, but in the attainment of original types of buildings. The best of the foregoing structures owe their inspiration entirely to the tradition which preceded them, plus a fusion with imported forms of antique classic, as well as an honest regard for the conditions of the period that witnessed their erection. Turning to the Gothic Revival of the last century, we find that the best works are indubitably those which in spirit closely approach the masterpieces of the Middle Ages; for examples, the buildings of Pugin, Pearson, and Bodley attain to an excellence comparable to old work. Yet when the influence of the Revival waned, and when the passion had almost exhausted itself, the rank and file of the Gothicists sought to express their taste in a style of free Gothic which in its vagaries is almost banal.

On the classic side the originality of Vanbrugh's work has nothing in common with the polished manner we associate with Chambers. Neither would it be just to compare the exquisite finish of Cockerell's detail with the frenzied attempts of modern classic. We might be tempted to say with Gwilt:—"All sense in the application of appropriate forms in mouldings seems now extinct, and Palladio set at defiance. He who can in the present day produce the newest and most extraordinary moulding in profiling an Order is the greatest genius."

An examination of the best modern architecture evolved to-day in America and France proves conclusively that the only original buildings in those countries are those which, in spirit at least, conform to traditional truths.

NOTES.

Army Huts and the Press.

ACCORDING to the daily Press the War Workers National Committee have received a Report as to the manner in which the huts for the King's Army have been carried out. The Report states that there are something like twenty camps in the United Kingdom, and in each camp there are from 250 to 300 huts, or some 6,000 in all. The huts are 60 ft. by 20 ft. and 7 ft. 6 in. to the eaves, with a door at each end and three windows on each side, and a stove in the centre, the beds being placed in boxes raised up from the floor. It is alleged that air comes up between the floor-boards when the latter are dry, and the wind works its way in through the weather-boarded sides, the roofs in many cases letting in both sunshine and rain. When contemplated it was stated that they would be properly constructed, and they were estimated for accordingly, the price ranging from £139 to £150. It is said that in order to facilitate construction many contractors dispensed with mortising and tenoning, or the housing in of rails, struts, and braces, and that even if 25 per cent. discount were allowed off a handsome profit would remain to the contractors! The officers' huts are, we hear, well constructed and the floors covered with linoleum. How the latter fact bears on bad construction we are at a loss to make out, but suppose it is a side kick at the luxury needed by officers! The officers' huts are roofed with corrugated iron instead of felt; but no statement is made as to the quality of the officers' mess, which would seem as pertinent to the subject as the provision of linoleum! Naturally allegations of sweating are made. The workman is probably never at fault unless he is sweated! Appended to the Report is an estimate of the cost of erecting one of the huts, which, including labour and materials, appears to be based on prices quoted in the *Builder* of November 20, and is said to amount to £85 10s., whereas the estimates for complete huts range from £130 to £150. Assuming that the cost has been based on our figures, we should be ungrateful to cavil at the result; but we may perhaps ask whether the authority who has made the estimate has allowed for the fact that in many cases labour has probably been imported and railway fares and lodging allowances paid, and that a shorter time for completion than that usually allowed may have been insisted on by those in authority, and other conditions may have been abnormal. But if it is true that contractors have somehow managed to make 30 to 40 per cent. profit we consider they have been unusually fortunate. We did not know that such gold mines existed in the British Isles.

Protection of Buildings from Bombs.

WE have had several communications from architects on the subject of the measures which should be taken to protect buildings from aerial attack, and as we have—for reasons stated below—no remedy to propose we should be glad if those whose ingenuity and powers of invention are greater would send us their views. From time immemorial the roof of a building has been considered as a protection from weather only. An ordinary roof is not even adapted for walking on—first, because most roofing materials are easily broken under pressure; and, secondly, because roof trusses are only adopted for carrying the weight of the roof covering. We know that bombs directed against a stone or brick wall would destroy it, and it follows that a bomb dropped on an ordinary roof would go through it like a sheet of paper. A similar result is effected by lightning; but a building is so seldom struck that in a very large number of cases no means of protection are used, though the means are easy and cheap as compared with any which are likely to be devised to meet bombs. We think that the same reasoning which convinces us that lightning conductors are not necessary in the case of the average building should reassure us with respect to the possibility of damage from bombs. If not, there are always insurance companies and Lloyd's, who will protect us from financial loss of any kind for a reasonable premium. We can see no other way. Assuming a steel network of enormous strength could be stretched over our buildings to catch bombs, and enable them to explode harmlessly, the network would have to be supported on the buildings themselves, and it is doubtful whether walls or roof would be rigid enough to take the extra stress. If we had to look forward to lives spent from infancy to the grave in danger of bomb attacks the question would become a serious one, and our buildings might have to be built to stand the shock of hostile bombs as they now withstand a shower of rain; but we doubt whether Germany's intention to prolong the war until she has used up the last German cat and dog will lengthen the war sufficiently for that.

The Egypt Exploration Fund.

THE twenty-eighth ordinary meeting of the Egypt Exploration Fund was held in the rooms of the Royal Society on Friday last week, Professor Sayce in the chair. That the attendance was not very large may be attributed to the anxious time we now live in; but it is right and fitting that societies dealing with important branches of archæological study should keep up their meetings in spite of the clamour of war, and remind us that there are still studies to be pursued which are of permanent and enduring value. The most important subject dealt with in the Report of the Committee for 1913-14 was in regard to the clearance of the so-called "Osireion" at Abydos, the entrance to which was first discovered by Miss M. A. Murray and Professor Petrie in 1903, and of which Professor Naville found considerable further remains when he renewed the attack upon it two years ago. Last year a pause had to be made in the operations in order to get rid of the immense mounds of rubbish thrown out of the Great Temple by Mariette's workmen. The building that Professor Naville and his assistants have brought to light seems to constitute one of the most remarkable finds in recent Egyptian archæological enterprise. We quote from the Report the following description of its principal features:—

> Its remarkable hall of colossal granite monoliths, resembling the Temple of the Sphinx at Gizeh; the strange platform in the centre of the hall, with its steps descending to a tank-like trough, separating the platform from the pillared aisles of the building; its row of niches on either side; its strange and dim sanctuary-chamber at the further end, which, it would seem, ought to communicate with the great temple at the higher level above, on which it practically abuts; the cyclopean blocks of its walls, resembling the Inca stonework of Cuzco; all these form one of the most curious and interesting discoveries made in Egypt of recent years, a find upon which we are sure the Fund will wish to reiterate its congratulations to the eminent discoverer. Professor Naville thinks the building is the actual sacred pool of the mysteries of Osiris mentioned by Strabo, and that it is as old as, if not older than, the Temple of the Sphinx. It is a work which we may be proud to have been the means of accomplishing.

In the last sentence we entirely concur; such a discovery is one of the best justifications of the existence and of the outlay of the Fund. The main paper for the occasion was an illustrated lecture by Mr. T. Eric Peet, on the early, or what he defined as the "pre-dynastic," art of Egypt—of the period before the First Dynasty; a lecture admirably delivered, but the conclusions of which we are rather disposed to question. He commenced by remarking that Egyptian art had been rather unfairly disparaged in comparison with Greek art, in consequence of attention not having been directed to the best examples of the former. Now, though Greek art, especially architecture, doubtless owed something to Egypt, any comparison between the two, as on an equal footing, is absurd. Whatever the grandeur, in some respects, of Egyptian art, and its immense historic interest, it is essentially a semibarbaric art; and no art was ever the more opposite to barbaric than Greek art of the great Athenian period. Some information on, and examples of, the pre-dynastic art of Egypt were undoubtedly of interest, and the first example illustrated, of a vase assumed to be of that early period, was fairly surprising from its Greek purity of line. But other examples only served to show the essentially barbaric and puerile character of this early Egyptian art—if art it could be called. It would have been a point of some interest if any theory had been suggested as to who were this early race who peopled Egypt, and whence they came. It is a remarkable fact that, though Egypt is not a timbered country all the earliest Egyptian rock-cut façades are a manifest imitation of wooden structure, and the people who made them must have migrated from a country where wood was the chief building material. This might have furnished an interesting subject for discussion; but discussion does not seem to be favoured at the Egyptian Fund functions, and the meeting was brought to a rather abrupt termination by the usual perfunctory votes of thanks.

The Call for Unity.

As the President of the Society of Architects reminds us in his opening address, "We have at least to thank the war . . . for giving us the unique spectacle of representatives of all sections of the profession working together for the common good." We have already asked why they should not continue so to work after the war is over, and we now ask it again. "What is there, after all," asks Mr. Monson, "to prevent a federation of all architectural societies?" We have never ceased to regret that the efforts of the Institute and the Society to obtain unity by amalgamation were frustrated, but there may be other methods of achieving the same results. But if the advantages of one all-embracing organisation cannot yet be realised there are benefits to be derived from the healthy and generous emulation of separate organisations working for the same object by different means. The Society has done good work lately in the cause of education by the consistent support it has extended to the Beaux-Arts Committee, and we think Mr. Monson is entitled to claim that the First Atelier of Architecture has proved an undoubted success. But while good work in any direction, and coming from any quarter, is to be welcomed and acknowledged, we cannot help feeling that even better results might be obtained by the combined efforts of the whole profession in this or in any other direction. On all sides the need for unity is recognised. Both the President of the Institute and the President of the Society seem alive to its value. The general feeling seems to be that now is the time for all men of good will to draw closer together for the good of the cause they all have at heart. Why, then, do they not do so? Is it too much to hope that both the Institute and the Society will take advantage of this period of enforced truce to examine their differences in the light of the newer spirit of unity which the war has enkindled throughout the whole country? We venture to think the good will is there, and that all that is needed is the statesmanship. It would be a happy event if when Peace is declared the Institute and Society were united as one body against the forces of ignorance and apathy.

SOUTHPORT TECHNICAL SCHOOL COMPETITION.

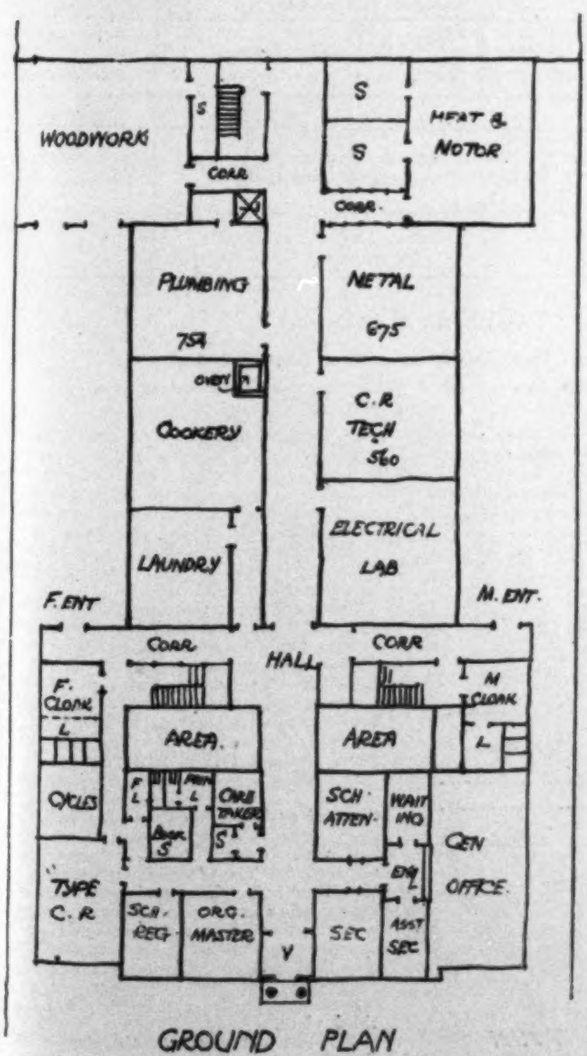
As we announced in our issue last week, the result of the competition for the new Technical School and School of Art at Southport, on the site of the skating rink in Lord-street, is as follows:—First premium, £75, Mr. Jas. Miller, A.R.S.A., of Westminster; second premium, £50, Messrs. S. N. Cooke & Twist, of Birmingham; third premium, £25, Messrs. Marshall, Robinson, Son, & Wheeler and Messrs. Henderson & Brown, joint architects, of Bolton. The assessor was Mr. Paul Waterhouse, M.A., F.R.I.B.A.

Although this competition was one of unusual interest, it was presented in the instructions to competitors in such an uninviting way that many who would otherwise have competed must have been discouraged at the very beginning. In these times one expects more than forty-six schemes to be submitted in a competition of this kind. Unfortunately a very attractive problem was confused and the competition spoiled by the demand for an alternative scheme for the temporary use of a portion of the present skating-rink buildings; so that instead of confining their energies to a scheme which in its completeness presents a problem of much interest, competitors had to consider all the time its adaptation to suit the alternative and most unattractive scheme. The edge of such delight as there is in competitive design is taken off by this kind of thing, to say nothing of the additional work involved in the double set of plans asked for. The futility of the idea is enforced, with more irony than comfort, by the fact that the assessor has advised the abandonment of the half-hearted scheme on the ground of its false economy, and that the committee will probably act on his suggestion. The situation thus created should encourage simplicity in future conditions; the ingenious idea has barred out many competitors, and has muddled several of the schemes submitted in which the authors have paid more attention to the cheaper scheme, in doubt of the committee's real intentions.

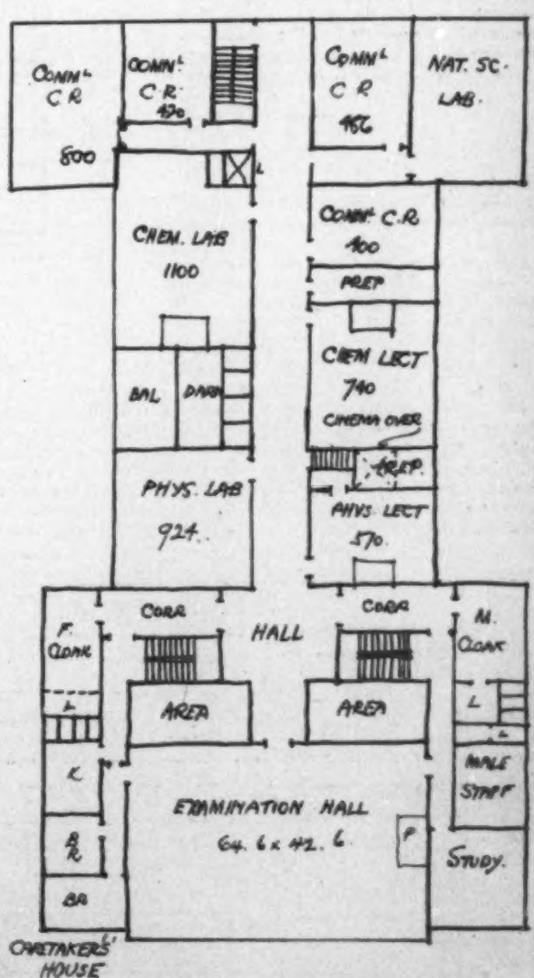
In all other respects the conditions were good. The accommodation required may briefly be summarised thus:—The administrative department, containing a large examination hall, masters' and staff rooms, lavatories, and cloakrooms; the education offices (which department was to be provided with a separate entrance); the following departments in the Technical School—engineering, building, science, commercial, and domestic, each with its laboratories, workshops, and lecture-rooms; and the School of Art. The commendable method of 1-16-in. scale drawings was adopted. The site supplied the chief difficulties, and these were almost all concerned with the lighting. It has a narrow frontage and considerable depth, and there are no rights of light over the adjoining properties at the sides. The plot at the back will be available in some years' time for future extensions. The front faces Lord-street, the principal thoroughfare of Southport. The intended cost was £16,000 for the smaller scheme, that of the larger being left indefinite.

We have rarely known a competition where the designs so definitely sorted themselves out into classes; but the choice between them seemed to us, after the event, so obvious that we are surprised that they were not all in one class. In all cases the education offices and administration occupy the front block. Behind this the school proper stretches down the length of the site (*a*), with a single central corridor having classrooms on either side and fairly adequate lighting from the spaces left between the building and the boundary; (*b*) with two corridors and an area between them, and classrooms at the sides, but with such inadequate lighting from the side as condemns all these schemes outright, *vide* the third premiated design; (*c*) with successive blocks one behind the other, connected by short corridors; a class which ought not to have existed at all, yet containing a surprising number of competitors. One competitor (No. 40) had a clever plan with a central area, from which the classrooms were lighted, which worked out better than either of the above types except the first. Indeed, the first is the only one which could be very seriously considered.

Hence, doubtless, the first premiated design. We wish to be understood to accord it uncommon praise for its grasp of this leading principle, because we have rarely met with premiated designs so poorly planned in detail as in this; yet there is no other scheme that should displace it. The Enigma variations of Elgar are said to hint at a melody which is never actually heard, but which lies at the root of the composition. We imagined here that a pot-pourri of the best four or five designs might contain the perfect scheme, which, in spite of much excellent workmanship, has not been submitted in this competition. This first design is simple in its arrangement, and the lighting is good, though from this we must except the rooms at the rear, whose windows are expansive, but noted on the plans to be built up until such time as the site behind is available. The front block is really badly planned. We do not recollect anything so labyrinthine in a winning design. The bad placing of the school entrances is at the root of it. If the conditions are indicative of the committee's intentions, the front entrance will be for the offices only; the five hundred



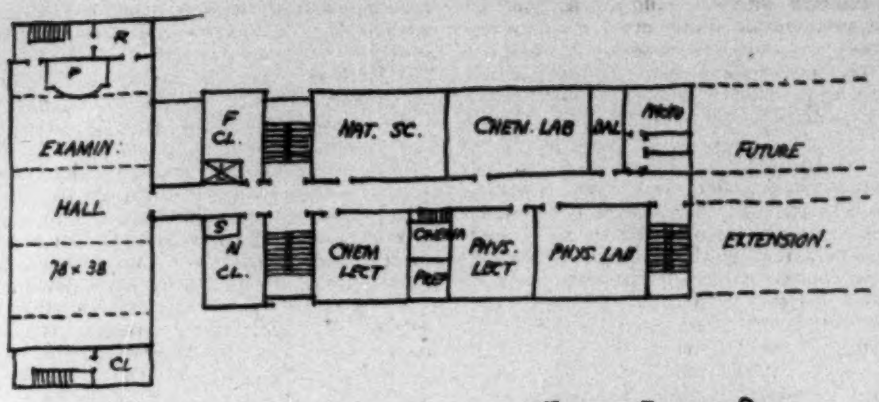
GROUND PLAN



FIRST FLOOR PLAN

Southport Technical School: First Premiated Design.

By Mr. James Miller, A.R.S.A.



FIRST FLOOR PLAN.

Southport Technical School: Second Premiated Design.

By Messrs. S. N. Cooke & Twist.

pupils have to use the narrow passages at the sides of the building, find their way to the curiously-placed doorways, and then use staircases whose disposition involves very poor arrangement on the upper floors. We would note the extremely complicated approach they provide to the examination hall. This is all unnecessary, for the plan is on lines so generally good that further study would have put these defects right. We suggest a comparison of the entrances with those of the third design.

The school itself is much better; it has a simplicity in striking contrast to the front building. It is not till we get to the widening at the back that we find lapses, caused by the inevitable difficulties in planning re-entrant angles. Much must be ascribed to the confined site. The area is scarcely adequate if the building is limited to the three stories definitely suggested in the conditions.

The elevation is by no means gross, as are many of those submitted, but it is without interest. The only stirring thing about it is the way in which the central portion, designed like a public building, quarrels with the wings, which are domestic in style. Otherwise it is insipid and half-hearted in scale and conception.

The second premiated design seriously rivals the first. In their endeavour after a sound type of floor plan and good lighting the authors have first lightened their ship. They have got rid of the noisy sections of the building department and the motor shop by placing them as one-story workshops against the side boundaries of the site, and they have put the Art School on a fourth floor. With all this cargo overboard, they have steered clear of all the rocks which beset other competitors, and their floor plan is a model of straightforwardness and ease in planning. The lighting is the best in the whole competition. The first of the expedients they have adopted is questionable, as it cuts up the building department inconveniently; the second apparently has not found favour, and between them have probably cost the authors the first place, for their design is in every other respect superior to that placed first.

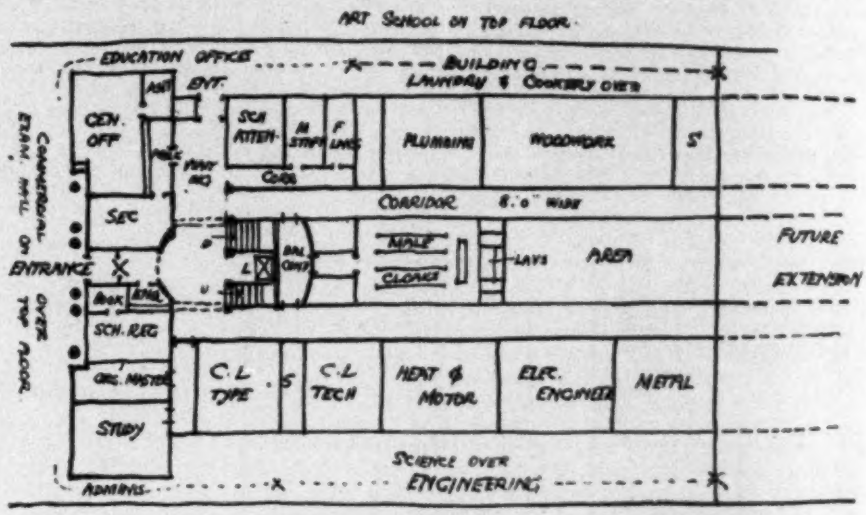
Their principle is again the central corridor, which is rather narrow. The school proper is as straightforward as possible; the entrances, staircases, and cloakrooms are well arranged, although, as in the first design, the position of the pupils' entrances is exceptionable. The two light areas are placed where they are most useful. The rhythm of the plan would be greatly improved and the construction of the building simplified if the divisions between the rooms agreed better with the bay divisions. The correspondence is honoured more in the breach than in the observance. There is some confusion, too, in the grouping of the various departments, the drawing offices being often very far from the corresponding laboratories or workshops. The grouping is more according to the type of noise or smell made than in regard to the use of the rooms—a very good principle when special rooms are to be isolated in an academic building. But in such cases as this nearly all the rooms are special. The administrative department and offices are not planned with the same decision, and the tendency to narrow corridors throughout has militated against an adequate entrance hall. The building has no centre. A wise provision is that of additional staircases to the examination hall.

The elevations have fine architectural qualities, entirely due, however, to Professor Reilly's Students' Union building at Liverpool, of which it is a remarkable adaptation.

We can only understand the selection of the third premiated design on the ground that the assessor wished to give official recognition to the double-corridor type of plan. The bad lighting is an insuperable objection to the scheme, and it is inconceivable that it would ever have been carried into execution except on the assumption that the adjoining sites would never be built on. There are many attractive features in the plan, which is more architecturally conceived and better drawn than any set in the competition. We think that the system of entrances adopted by the authors is sounder than those we have noticed; the main doorway is made the school entrance, and the office entrance is relegated to a secondary position.

There are minor points of detail which are not well worked out. The women's cloakrooms on one floor and the men's on another is not a good working arrangement, and their approach is awkward. Many of the smaller rooms are badly proportioned. The shape of the examination hall is nothing less than absurd: it occupies the whole width of the front of the building, but its depth is only that of the wings at the end shown on the ground plan, so that its proportions are more those of a rifle range than of a hall. The grouping of the departments is very excellent in this design. The elevations, too, are very good. The façade is dignified and broad, and, though marred by an excessively heavy attic story, its breadth and scale make it convincing. The whole design is so well drawn that attention is attracted to its qualities, but the scheme is really an impracticable one, and there are one or two others which make a stronger claim for the third place.

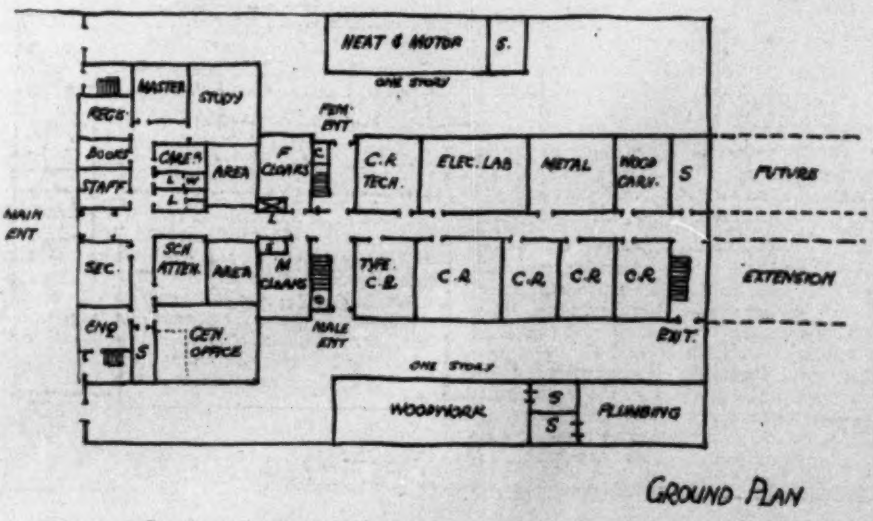
We had not access to the names of the firms who submitted the unsuccessful designs, so that, although many were of great interest, any lengthy notice of them would be pointless. We noticed one in particular,



GROUND PLAN.

Southport Technical School: Third Premiated Design.

By Messrs. Marshall, Robinson, Son, & Wheeler and Messrs. Henderson & Brown.



GROUND PLAN

Southport Technical School: Second Premiated Design.

By Messrs. S. N. Cooke & Twist.

No. 39, which had an ingenious cross-section, the upper floors having a central corridor, the workshops in the lower floor being placed at the sides of the site and top-lighted; a variant of the motive of the second design, but with the additional advantage that the approach to these workshops is from within the building. The idea is worked out with much skill; the elevations are perhaps the best on exhibition, a simple idea being carried through with considerable verve, giving a very commanding result.

The design numbered 40 was the only successful double-corridor design, and it differed from all the others in that the class-rooms were lighted from the area, as we have noted above. The plan on the whole was very workmanlike, and had a dignified elevation.

Many competitors handicapped their schemes by a misunderstanding of the purpose of what was unfortunately referred to in the conditions as a central hall, although it was clearly intended for an examination hall, and the suggestion was clear that it should be in the front block. In many cases it is treated as would be the assembly hall of a secondary school.

We have taken no note of the schemes submitted by each competitor for the utilisation of the present front buildings. Circumstances prevented any of them from showing any good qualities except the ingenuity of their designers. The most unfortunate aspect of them is that, misled by the emphasis placed on this alternative scheme in the conditions, some competitors have put into it their best effort, thereby spoiling their completed schemes.

FAULTY FIRE ESCAPES.

IT is well to lock the stable door before the steed is stolen, and it would seem that Parliament had this truism in mind when passing the City of London Fire Inquests Act, 1888, under which the City Coroner is empowered to inquire into fires of a non-fatal character. We have from time to time drawn attention to the useful work done under this Act, and have advocated further measures of a preventive character in connection with old buildings in London which are used for manufacturing and other purposes, involving the presence of considerable numbers of employees. So long as the number of persons employed does not exceed forty, the factory inspectors have no powers, and the rules intended to secure safety in case of fire are enforced by the London County Council under the London Building Acts, 1894 to 1905. The task of the Council in this matter is one of difficulty, because of the great hardships that would be involved in many cases if any attempt were made to enforce a fixed standard. For these and other reasons there remain in London many buildings in which small bodies of workers are engaged under conditions that subject them to a greater risk from fire than appears necessary. Outside the City no especial attention is drawn to these buildings unless a fatal fire occurs, but the Act referred to above operates very usefully in giving prominence to fires which are not accompanied by actual loss of life. Such a case occurred at No. 4, Little College-street, E.C., at 7 a.m. on October 22 last, and was the subject of an inquest in the Court of Dr. F. J. Waldo, the City Coroner. It appears that the building was about one hundred and twenty years old, and was insured at a premium of nearly 30s. per cent., that it was occupied by several firms, and that sixteen workpeople, including nine girls, worked on the two top floors. The only means of escape from the roof was by a ladder which did not reach the top by 2 ft. 6 in. This means of exit was condemned by Superintendent Allison, of the Salvage Corps, in his evidence, and he stated that he did not consider it a reasonable means of exit. The jury, in a rider to their verdict, said that the means of escape from fire urgently needed improvement.

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THE OLD TOWN HALL, PENZANCE.

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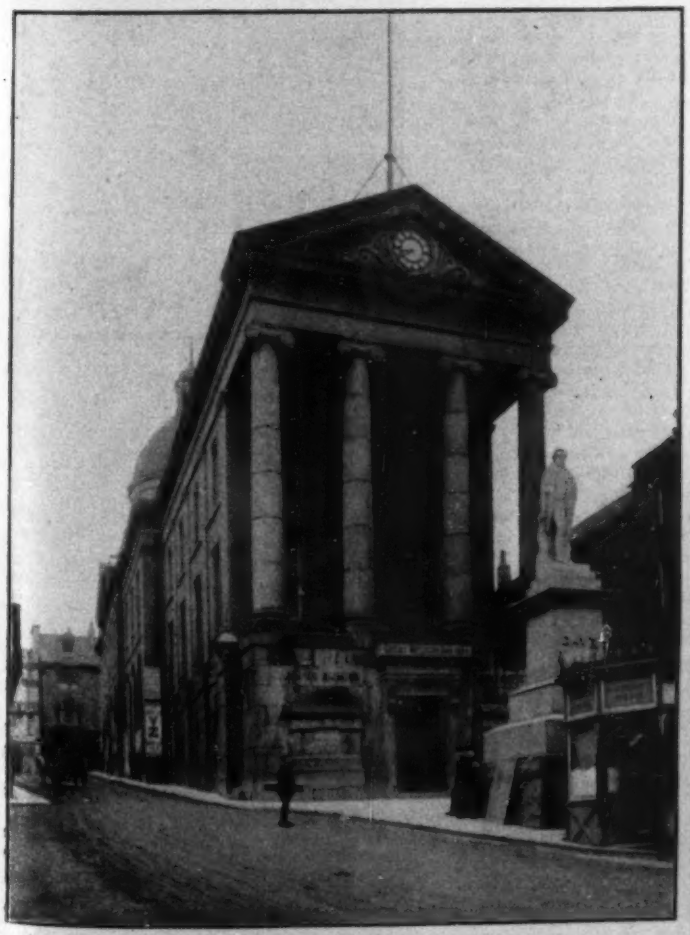
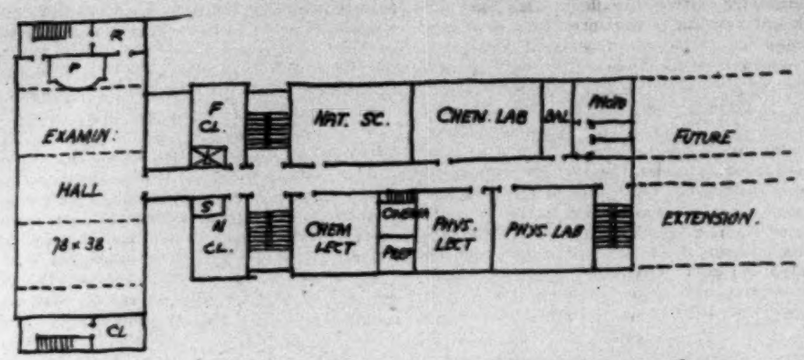


Flank Walls and Cupola.

Elevation of Portico.

The Old Town Hall, Penzance.
William Harris, Architect, Bristol. (1836.)



FIRST FLOOR PLAN.

Southport Technical School: Second Premiated Design.

By Messrs. S. N. Cooke & Twist.

pupils have to use the narrow passages at the sides of the building, find their way to the curiously-placed doorways, and then use staircases whose disposition involves very poor arrangement on the upper floors. We would note the extremely complicated approach they provide to the examination hall. This is all unnecessary, for the plan is on lines so generally good that further study would have put these defects right. We suggest a comparison of the entrances with those of the third design.

The school itself is much better; it has a simplicity in striking contrast to the front building. It is not till we get to the widening at the back that we find lapses, caused by the inevitable difficulties in planning re-entrant angles. Much must be ascribed to the confined site. The area is scarcely adequate if the building is limited to the three stories definitely suggested in the conditions.

The elevation is by no means gross, as are many of those submitted, but it is without interest. The only stirring thing about it is the way in which the central portion, designed like a public building, quarrels with the wings, which are domestic in style. Otherwise it is insipid and half-hearted in scale and conception.

The second premiated design seriously rivals the first. In their endeavour after a sound type of floor plan and good lighting the authors have first lightened their ship. They have got rid of the noisy sections of the building department and the motor shop by placing them as one-story workshops against the side boundaries of the site, and they have put the Art School on a fourth floor. With all this cargo overboard, they have steered clear of all the rocks which beset other competitors, and their floor plan is a model of straightforwardness and ease in planning. The lighting is the best in the whole competition. The first of the expedients they have adopted is questionable, as it cuts up the building department inconveniently; the second apparently has not found favour, and between them have probably cost the authors the first place, for their design is in every other respect superior to that placed first.

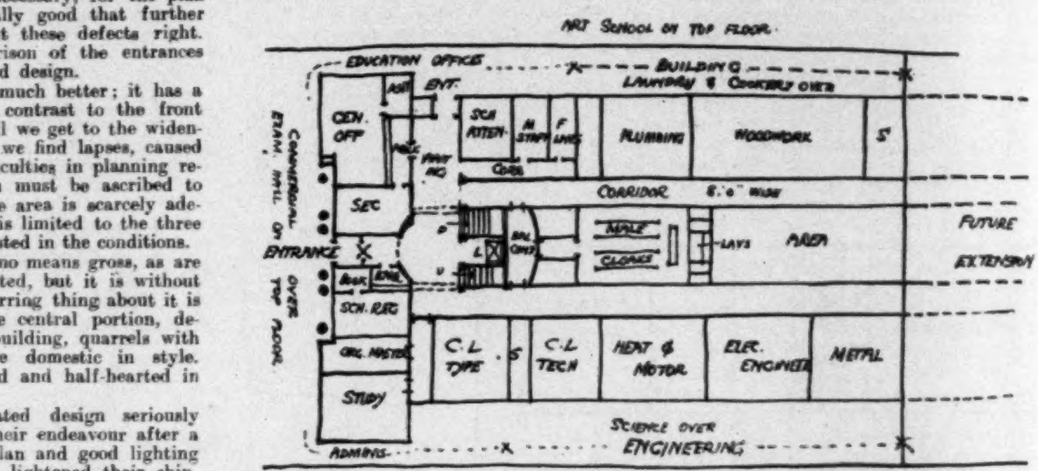
Their principle is again the central corridor, which is rather narrow. The school proper is as straightforward as possible; the entrances, staircases, and cloakrooms are well arranged, although, as in the first design, the position of the pupils' entrances is exceptionable. The two light areas are placed where they are most useful. The rhythm of the plan would be greatly improved and the construction of the building simplified if the divisions between the rooms agreed better with the bay divisions. The correspondence is honoured more in the breach than in the observance. There is some confusion, too, in the grouping of the various departments, the drawing offices being often very far from the corresponding laboratories or workshops. The grouping is more according to the type of noise or smell made than in regard to the use of the rooms—a very good principle when special rooms are to be isolated in an academic building. But in such cases as this nearly all the rooms are special. The administrative department and offices are not planned with the same decision, and the tendency to narrow corridors throughout has militated against an adequate entrance hall. The building has no centre. A wise provision is that of additional staircases to the examination hall.

The elevations have fine architectural qualities, entirely due, however, to Professor Reilly's Students' Union building at Liverpool, of which it is a remarkable adaptation.

We can only understand the selection of the third premiated design on the ground that the assessor wished to give official recognition to the double-corridor type of plan. The bad lighting is an insuperable objection to the scheme, and it is inconceivable that it would ever have been carried into execution except on the assumption that the adjoining sites would never be built on. There are many attractive features in the plan, which is more architecturally conceived and better drawn than any set in the competition. We think that the system of entrances adopted by the authors is sounder than those we have noticed; the main doorway is made the school entrance, and the office entrance is relegated to a secondary position.

There are minor points of detail which are not well worked out. The women's cloakrooms on one floor and the men's on another is not a good working arrangement, and their approach is awkward. Many of the smaller rooms are badly proportioned. The shape of the examination hall is nothing less than absurd: it occupies the whole width of the front of the building, but its depth is only that of the wings at the end shown on the ground plan, so that its proportions are more those of a rifle range than of a hall. The grouping of the departments is very excellent in this design. The elevations, too, are very good. The façade is dignified and broad, and, though marred by an excessively heavy attic story, its breadth and scale make it convincing. The whole design is so well drawn that attention is attracted to its qualities, but the scheme is really an impracticable one, and there are one or two others which make a stronger claim for the third place.

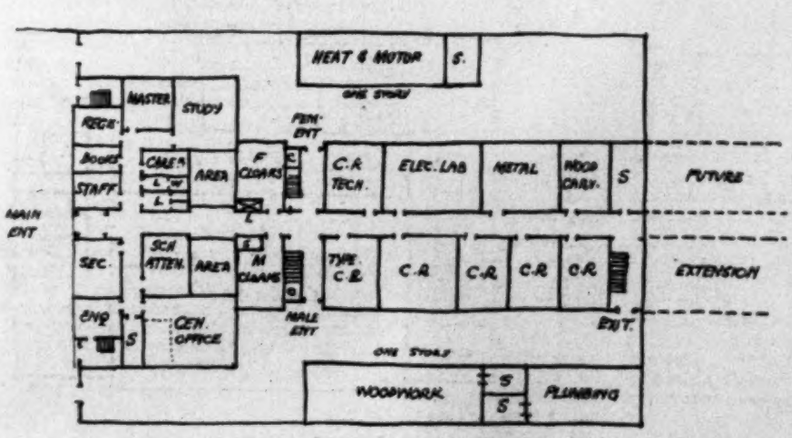
We had not access to the names of the firms who submitted the unsuccessful designs, so that, although many were of great interest, any lengthy notice of them would be pointless. We noticed one in particular,



GROUND PLAN.

Southport Technical School: Third Premiated Design.

By Messrs. Marshall, Robinson, Son, & Wheeler and Messrs. Henderson & Brown.



GROUND PLAN

Southport Technical School: Second Premiated Design.

By Messrs. S. N. Cooke & Twist.

No. 39, which had an ingenious cross-section, the upper floors having a central corridor, the workshops in the lower floor being placed at the sides of the site and top-lighted; a variant of the motive of the second design, but with the additional advantage that the approach to these workshops is from within the building. The idea is worked out with much skill; the elevations are perhaps the best on exhibition, a simple idea being carried through with considerable verve, giving a very commanding result.

The design numbered 40 was the only successful double-corridor design, and it differed from all the others in that the class-rooms were lighted from the area, as we have noted above. The plan on the whole was very workmanlike, and had a dignified elevation.

Many competitors handicapped their schemes by a misunderstanding of the purpose of what was unfortunately referred to in the conditions as a central hall, although it was clearly intended for an examination hall, and the suggestion was clear that it should be in the front block. In many cases it is treated as would be the assembly hall of a secondary school.

We have taken no note of the schemes submitted by each competitor for the utilisation of the present front buildings. Circumstances prevented any of them from showing any good qualities except the ingenuity of their designers. The most unfortunate aspect of them is that, misled by the emphasis placed on this alternative scheme in the conditions, some competitors have put into it their best effort, thereby spoiling their completed schemes.

FAULTY FIRE ESCAPES.

IT is well to lock the stable door before the steed is stolen, and it would seem that Parliament had this truism in mind when passing the City of London Fire Inquests Act, 1888, under which the City Coroner is empowered to inquire into fires of a non-fatal character. We have from time to time drawn attention to the useful work done under this Act, and have advocated further measures of a preventive character in connection with old buildings in London which are used for manufacturing and other purposes, involving the presence of considerable numbers of employees. So long as the number of persons employed does not exceed forty, the factory inspectors have no powers, and the rules intended to secure safety in case of fire are enforced by the London County Council under the London Building Acts, 1894 to 1905. The task of the Council in this matter is one of difficulty, because of the great hardships that would be involved in many cases if any attempt were made to enforce a fixed standard. For these and other reasons there remain in London many buildings in which small bodies of workers are engaged under conditions that subject them to a greater risk from fire than appears necessary. Outside the City no especial attention is drawn to these buildings unless a fatal fire occurs, but the Act referred to above operates very usefully in giving prominence to fires which are not accompanied by actual loss of life. Such a case occurred at No. 4, Little College-street, E.C., at 7 a.m. on October 22 last, and was the subject of an inquest in the Court of Dr. F. J. Waldo, the City Coroner. It appears that the building was about one hundred and twenty years old, and was insured at a premium of nearly 30s. per cent., that it was occupied by several firms, and that sixteen workpeople, including nine girls, worked on the two top floors. The only means of escape from the roof was by a ladder which did not reach the top by 2 ft. 6 in. This means of exit was condemned by Superintendent Allison, of the Salvage Corps, in his evidence, and he stated that he did not consider it a reasonable means of exit. The jury, in a rider to their verdict, said that the means of escape from fire urgently needed improvement.

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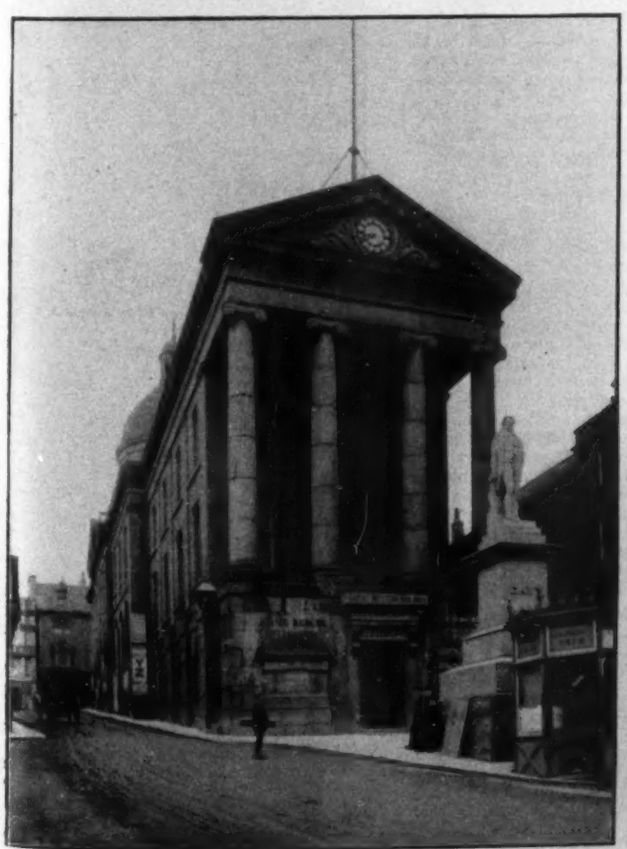

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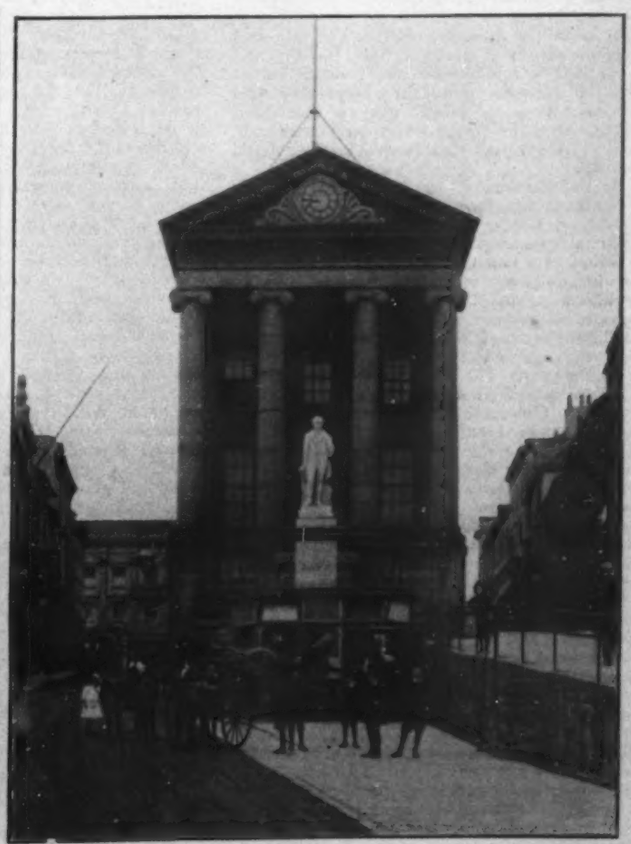


Elevation of Portico.

The Old Town Hall, Penzance.
William Harris, Architect, Bristol. (1836.)

one is to be seen in the style and dignity of the buildings belonging to the first quarter of the last century which are characteristic of Bodmin, Truro, and Penzance. The coaching era at that time was at its zenith, the railway, then in its infancy, had not yet penetrated into Cornwall, although, paradoxical as it may appear, Trevethick's steam-engine had been created in the county by the genius of a Cornishman long before Stephenson's triumph in the North of England demonstrated the power of steam. The roads were good and communication was easy, hence the transportation by road of countless tons of granite required for buildings in remote parts. As the prosperity became more general so the numerous mining and other centres assumed the civic dignity of important towns; the erection of public buildings became the order of the day, and, as is invariably the case, despite the intentions of architects, these buildings are eloquent of the age that witnessed their erection. Many persons there are who go to the West Country full of enthusiasm for Arthurian legend, others are expectant of rare discoveries among the Celtic monuments, or obsessed with a craze for romantic scenery. Question such enthusiasts on the character of Cornish architecture and they will reply that architecture in Cornwall, with the exception of the mediæval castles and churches, is practically non-existent. Ask them further if they encountered anything in the Classic taste, and they will stare at you with expressive scorn. To such persons the greater part of local history is a sealed book. Yet, the fact remains for the curious to discover that the refinement of the eighteenth-century architectural tradition which manifested itself with greater strength nearer the metropolis, notwithstanding the changed conditions and the difference of building material, permeates the comparatively plain buildings of Cornwall. There is an inherent charm in the simplicity of the well-proportioned sash window, the broad eaves, and the low-pitched slate roof which is enhanced by the judicious placing of a Classic porch or a refined balcony. Such buildings are to be found everywhere in the West. One chances upon them, sometimes as coaching hotels, sometimes as private houses or homely farms, but more often as beautiful interpretations of humble cottage life. Formerly it was accepted that beyond Exeter there was little to be seen of architectural interest; few had cognisance of the influence of John Foulston and Wightwick in Plymouth and Devonport; Tavistock was believed to be a small village beyond Dartmoor, and Truro, before Pearson's labours, to many minds was an uncivilised place. One of these days architects will rediscover the tradition in this little explored county.

One of the finest West Country buildings, in the Classic manner, is the Old Town Hall at Penzance, which was completed in 1837. In 1836 a competition was promoted for the erection of a new civic building, and two sets of designs were received, one set from an architect named W. J. Inman, of 3, Eaton-square, Grosvenor-place, and the other by William Harris, of Bristol. The latter won the competition, and the building was erected within a year. The drawings of both competitors are preserved among the archives of the Penzance Corporation. The building occupies a narrow site heading the summit of Market Jew-street, the difference in the levels necessitating a very clever adjustment in the composition. Formerly the space in the podium, immediately below the tetrastyle Ionic portico, was given to the town post-office, but latterly it has been let as a railway office. To-day the first floor is used as a meat market, and the offices over have been given up for the purposes of a drill hall. The nature of the material, Penrhyn granite, fortunately precluded lavish ornament, and the mouldings in consequence are reticent and simple. Harris, the architect, submitted several schemes for the treatment of the external staircase, but finally adopted an arrangement for approaching the main door from either side of the portico. The composition is dominated by a well-designed timber and lead cupola; the flank walls are divided into bays by slightly projecting parastatæ. Nearly all the decoration of the interior has been destroyed with the exception of one or two elegant beams and cornices.

There are several other buildings in Penzance, among which the two markets rank as worthy of study; both show the same architect's handling and taste for dignity and refinement. The monument to Davy is of comparatively recent erection, but the *tout ensemble* is not improved by the absurd cabmen's shelter which disfigures the setting. In these days of perverted Neo-Grec, when the order is caricatured and disfigured beyond recognition, when ornament partakes of the character of a stiff fungus, when architects are content to express themselves in a casual and slipshod manner, which is the epitome of vulgarity, it is refreshing to find tasteful and well-proportioned buildings in out-of-the-way corners of England.

ARCHITECTURAL SOCIETIES.

Glasgow Technical College Architectural Craftsmen's Society.

The fifth meeting of the Glasgow Royal Technical College Architectural Craftsmen's Society was held in the Society's Room on the 20th inst., when Mr. Robert Park gave a lecture on "Paint and Painter Work." The origin and process of manufacture of the several materials used in paint-work were traced and the adulterants used in order to cheapen the quality were described, chemical tests were shown for the detection of such adulterants, and the effect of town atmosphere on different paints was shown. The lecturer then gave particulars of experiments carried out in the college for the purpose of finding a good fume-resisting paint.

COMPETITION NEWS.

It must be understood that the following paragraphs are printed as news, and not as advertisements; and that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

The list of current Competitions is printed on page 520.

New School, Dundee.

Dundee School Board, at a recent meeting, considered a report of Mr. Alexander N. Paterson, of Glasgow, assessor in connection with the plans sent in for the erection of a new school in Bellfield-street. This report was read by the Clerk, who said that, according to Mr. Paterson, there were eleven designs sent in. The restricted area and unusual distribution of the site had rendered the problem one of much difficulty. Partly at least owing to this the question as to whether the accommodation should be provided in one building or two had divided the competitors, each of these alternatives, properly handled, having certain advantages. The selected design had adopted the arrangement of separate buildings. The author's estimate for his design amounted to £18,229, the Surveyor's report placing the cost at £19,792. For this sum, which was rather less than that stated in the conditions, and not more than 10 per cent. (as required by these) over the author's estimate, he considered that, with the simplest detail and finish and under normal rates, the buildings could be erected. The estimates in general submitted by the competitors were stated to be as for normal and pre-war conditions, and all had been considered on that basis as regards cost. The Surveyor had put in a statement to the effect that under the prevailing conditions due to the war an addition of 5 per cent. would require to be allowed over his estimates for the designs submitted to him if erected now. The placings of the assessor with the Surveyor's estimates were as follows:—First, Messrs. Maclaren, Sons, & Soutar, £19,792; second, Messrs. Maclaren, Sons, & Soutar, £22,703; third, Mr. Vernon Constable, Barnhill (architect in City Engineer's office), £22,136; and fourth, Messrs. Thoms & Wilkie, £22,443. The Board decided unanimously to accept the design placed first, and awarded the premium of fifty guineas to Mr. Vernon Constable and that of thirty guineas to Messrs. Thoms & Wilkie.

Tuberculosis Hospital, Southend-on-Sea.

We are asked to state that members and Licentiates of the Royal Institute of British Architects must not take part in this competition because the conditions are not in accordance with the published regulations of the Royal Institute on architectural competitions.

Members of the Society of Architects are hereby notified that they must not take any part in this competition, the conditions of which are not approved by the Council of the Society.

Hendon Baths.

We are informed that the drawings submitted in this competition will be on view at the Public Offices, Hendon, from December 2 to December 12, except on Monday and Tuesday, December 7 and 8.

BOOKS.

The English Parish Church. By J. CHARLES COX, LL.D., F.S.A. (London: B. T. Batsford, Ltd., 94, High Holborn. 7s. 6d.)

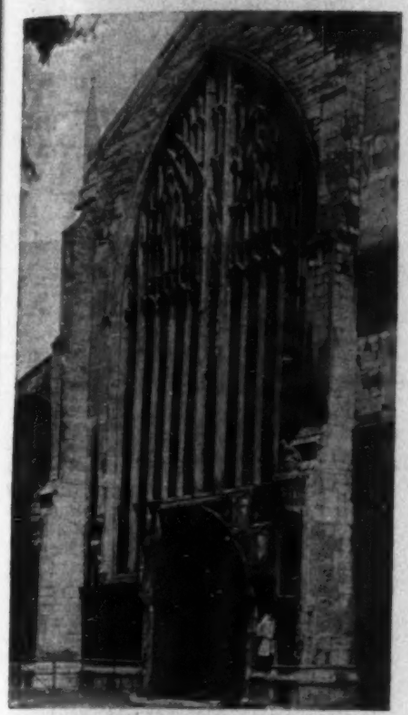
DR. COX has done a service to all who are interested in architecture in writing an able and thoroughly sound book on the English Parish Church, which has occupied so great a place in our national life. The critic may have good reasons for preferring the French cathedrals to our own, but all of us must admit that in its parish churches England possesses what no other country has—an unrivalled record of mediæval art in the form which most appealed to the national temperament and life.

The book is divided into five sections, which deal with (1) The Parish Church and its Surroundings in Town and Country, (2) The Plan of the Parish Church, (3) Architectural Styles in the Parish Church, (4) Materials of the Parish Church, and (5) What

St. Catherine's Chapel, Ledbury.
(From "The English Parish Church.")

to Note in an old Parish Church, and, without being marked by the dullness of a text-book, these clear-cut divisions will make it very useful as a work of reference. The value of a book does not depend on its size, as is shown in this instance, for, while it contains nothing which cannot be readily understood by any intelligent reader having an interest in the subject, the information is given with a care and knowledge which will render it of value to the architect. Only a writer with wide and accurate knowledge could have condensed so much into the space of a volume without interest being lost in the process. It is illustrated by 350 views, most of them from photographs, and all of them have been excellently chosen and are reproduced clearly, and give the full value which photography can contribute to architectural illustration.

The writer lays stress on the many different uses to which the church was put in mediæval times, when in troublous days, or when fires occurred, the parishioners were allowed to store wool, grain, or chests containing valuables or household goods within the church. Deeds, too, which had no concern with church lands, but related to leases and transfers within the parish were not infrequently placed within the parish chest for safe custody, and



St. Nicholas, King's Lynn.
(From "The English Parish Church.")

such covenants were frequently signed within the church porch, or, if relating to the fabric or parish generally, on the altar itself. Dancing sometimes took place in the nave of the church, and miracle plays were performed in it, and under the tower or at the west end it was usual to find a plough ready for use on "Plough Monday" (the Monday after the Epiphany), which was the season when ploughing and other rustic toil began. The consecrated church and churchyard served as sanctuary, and there is probably no parish church in England which has not at some time or other sheltered a fugitive. The various positions in which churches were built and their relation to the type of building adopted are well dealt with and discussed.

The division dealing with the typical plans on which churches were built is a full and ample one, very well illustrated by scale plans of the several types, which are traced

Woolpit Church, Suffolk: South Porch.
(From "The English Parish Church.")

by the author from three simple forms used in the twelfth century—(1) The Nave and Sanctuary, (2) the Nave, Chancel, and Sanctuary, and (3) The Cross Church, with Nave, Transepts, Sanctuary, and Central Lantern Tower, the more complex plan of later days being derived from the first and third of these. Naves have received the additions of aisles, clerestories, and porches, while chancels have been lengthened or rebuilt, often with the addition of chapels, and in many cases clerestories as well. New towers have been added, existing ones heightened; or in cross churches a central tower may have been replaced by one in a fresh position, usually at the west end.

The other sections of the book are equally carefully and thoroughly written, and so much of the book is deserving of quotation and reference that we feel it is impossible in the space at our disposal to do better than advise our readers to purchase it. The legend of the Sibylline woman occurs to us in connection with it. The Sibyl, it will be remembered, burnt her books by degrees, asking a higher price for what remained till she obtained a purchaser. In the same way this book might represent the condensation of what occupied many volumes, and is worth more than the volumes it might have replaced—the greatest tribute that can be paid to its merits. We give, by permission of Messrs. Batsford, three examples of the excellent illustrations.

CORRESPONDENCE.

The Problem of Architectural Illustration.

We have received the following additional letters from correspondents in reference to the questions raised in the leading article in our issue for November 6 on the "Problem of Architectural Illustration":—

SIR,—I suggest that it is better to have one design illustrated thoroughly than three or four designs partially. I like to see plans, elevations, detail drawings, and, if they can be procured, photographs. A perspective alone is, I consider, valueless.

Your paper is for architects — present architects and future. It can exercise considerable influence, and on you, as Editor, depends whether, from your choice of the subjects you illustrate and your manner of representing them, that influence is great or small, good or bad.

London is the publishing centre for Great Britain. Architectural work is scattered all over the country. Unless a man's work is principally in London or some other centre, even his best friends may see very little of it. Here your paper comes in, and brings home to them and to others, by thorough representation such as I have suggested, what the work is really like and what lessons may be learnt from it.

By all means include the best Continental work; but treat it as thoroughly as the best British work should be treated. Include old work also, provided it bears on the present trend of architectural thought and has not merely an archæological or pictorial value or interest.

F. M. SIMPSON.

SIR,—The illustrations which chiefly interest me are measured drawings and sketches of old work of the right sort. I do not want what is called architecture so much as good sensible building sympathetically handled and full of human interest—old cottages, old farmhouses, and the less pretentious manor-houses. These quiet, dignified, unobtrusive buildings, which are passed over because they have no marked architectural features and which are the backbone of all that is good in building, are seldom illustrated. A book may be published on the Tudor period and one finds it full of the extravagances of the time expressed in its fashionable architectural features, and no one thinks it worth while to study and illustrate the sane and homely examples of ordinary building, the tradition of which must be firmly established before anything more ambitious can be attempted with success.

Besides this old work, to consider modern architecture appears as something of an anti-climax. Of this we would like to see more domestic work illustrated, as, after all, this is the most universally necessary. We must have houses to live in, and the pity of it is we cannot learn to build them as they used to be built. Then I suppose it is necessary to put up with illustrations of the usual type of public building. Such things, it appears, have to be—town halls, board schools, and all the other dreary dismal structures, admirably utilitarian, built with mechanical precision, and universally accepted and approved by all those people who have not begun to understand what possibilities there are in building—how a building in some mysterious way can acquire a personality and soul of its own full of silent and potent influences for good.

M. H. B. SCOTT.

SIR,—The general level of architectural design throughout the country is so much higher than it was twenty or thirty years ago that it would be well worth while to illustrate current architecture pretty fully. A weekly journal (if the term does not contain a contradiction) may properly devote itself to illustrating, in the main, that which is taking place from week to week. But variety is essential, and the occasional introduction of detail drawings, coloured drawings, if you like, and drawings of old work would provide a welcome change. Any notable new building, English or foreign, should be eligible; but those who want to study foreign work can do so in foreign periodicals, and those who want to study old work can do so in the A.A. *Sketch-Book*, and in the numerous books on the history of architecture which are published for the purpose of being studied.

Current work of all sorts seems to be that which should form the chief material for illustration—especially any new developments in such things as school planning and the like, or methods of construction. Plans, above all, are desirable, and photographs in preference to perspective drawings.

What we want to know is how effects are obtained; and when one comes to learn from what scanty, rough, and (as we should say) inadequate drawings most of the buildings of the sixteenth and seventeenth centuries were produced one is compelled to believe that fine drawing is not essential to fine architecture. The Thorpe, Inigo Jones, John Webb, and Christopher Wren collections amply bear this out.

Fine drawing is interesting in itself, and well worthy of being illustrated, but what is essential is that the drawing should convey the draughtsman's meaning clearly and intelligibly. Please, therefore, do not confine your illustrations to drawings of irreproachable excellence.

J. A. GOTCH.

SIR,—In response to your invitation, may I suggest that the perplexity you find yourself in (and have since found your readers) arises out of the complexity of function the *Builder* endeavours to perform? And, further, that if these functions be written out in their due order of importance your problem will be set on the high road to solution.

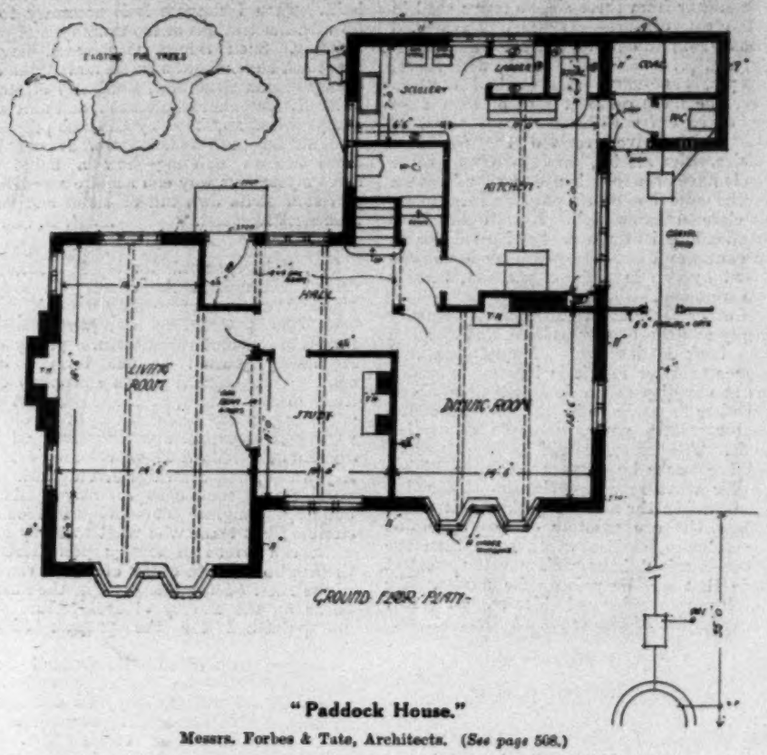
In the first place, the *Builder* is a newspaper, and as such must illustrate contemporary buildings of importance, together with the premiated designs for notable competitions, whether these be good, tolerable, or even very, very bad.

Secondly, the *Builder* is a very strong educative force, and as such should, I think, steadily publish or republish, if need be, carefully-chosen examples of the work of the past.

Thirdly, the *Builder* has an individual point of view and propaganda which should find expression according to its merits. This section may be considered merely a part of the educational side. But it can easily be separated from a series which should witness to a wide catholicity of appreciation rather than a strong conviction as to what is best to be done.

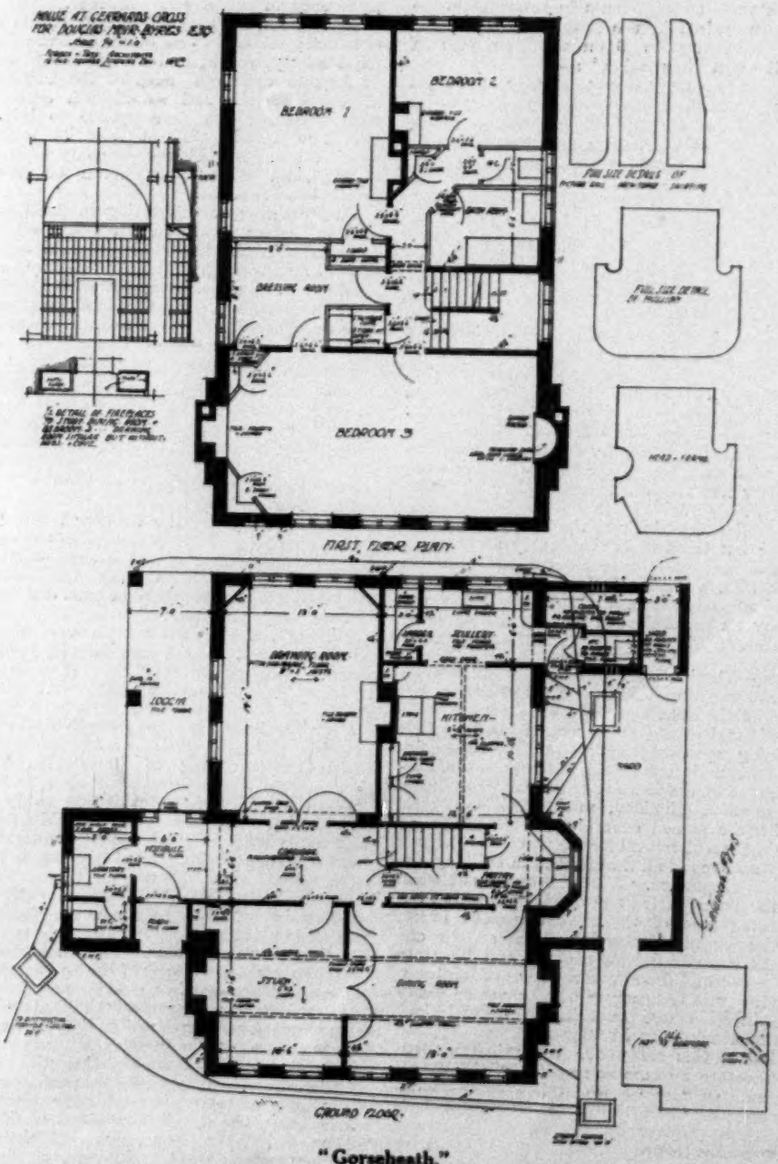
If these sections be assigned each its relative importance the amount of illustration the management is prepared to give may be allotted with decision. The same process would be adopted for each of the Supplements, though not necessarily the same proportions.

As to medium, I prefer the photograph, with as much plan and section as possible. I like to see line blocks inserted in the columns of reading matter, and suggest that with plans and sections a diagrammatic rendering in black and white is often of more essential value than the small reproduction of an elaborate drawing. My opinion of sketches and perspectives is that they are of almost



"Paddock House."

Messrs. Forbes & Tate, Architects. (*See page 508.*)



"Gorseheath."

Messrs. Forbes & Tate, Architects. (*See page 508.*)

no use at all. A diagrammatic setting up in line of mass or lay-out, in conjunction with plan, section, and elevation, is all that should be necessary to explain any design to architects, builders, and students. The reproduction of half-inch details assists cribbing from back numbers—a grovelling craft.

Finally, I plead for the publication of "ideal" projects and designs, the more brilliant work of students, restorations, and the original conceptions of practising architects—drawings which may help to rehabilitate the old conception of architecture as an intellectual art.

May I add that, for me, a clear indication of the category under which each important illustration falls would add greatly to the interest of your journal?

ADRIAN BERRINGTON.

L.C.C. Schools Competition.

SIR,—I am told that one month before the designs for the Linda-street, Battersea, schools were to be sent in the Education Authorities issued fresh rules and regulations wherein they expressed a strong preference for schools on one floor, and also stated that a reduction in the area of the playground, previously specified, would be permissible.

If I have been correctly informed, it is a scandal that the L.C.C. did not extend the time for sending in in order to give all competitors a better chance of complying with their regulation, which states that the design must comply with the requirements of the Education Board. Mr. Arnold Mitchell, I believe, had completed his drawings in compliance with the old rules when the new ones were published, but set to work and prepared an entirely new scheme. Other competitors, no doubt, had not the same opportunity. I was not a competitor, and have no brief to hold for anyone but "fair play."

C. F. A. VOYSEY.

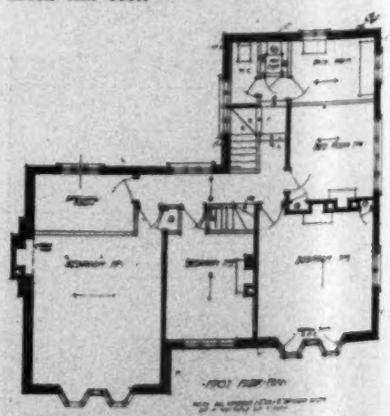
SIR,—If Mr. Widdows will take the trouble to read my letter again he will see that no sneer, cheap or otherwise, was levelled at Official Architects.

Public bodies who indulge in the luxury of municipal trading believe that work can be carried out officially as well as, and more cheaply than, by outsiders, while outsiders think differently.

Architects are citizens, and as such are entitled to expect that the officials whom they are taxed to support shall not enter into competition with them unless it can be shown conclusively that their doing so is in the public interest.

The London County Council Schools Competitions were initiated to demonstrate the soundness of one or other of these conflicting views.

One result has been to show that schools can be designed by private architects in every respect equal to those being carried out by the London County Council official staff and at much less cost.



"Paddock House."

Messrs. Forbes & Tate, Architects.

My criticism of the selected design dealt with facts which cannot be controverted, and I held, and still hold, that if the award is a proper one (apart from the question of cost) the London County Council will be justified in continuing to believe that their staff are quite

competent to design schools of equal or greater merit.

No one denies the great ability of many architects holding official positions. That has never been disputed, and has nothing whatever to do with the point at issue. As private practitioners these men would be in a position to give their services to the public, freed from trammels which some of them have more than once told me prevented them giving full scope to their ability, more especially in large staff offices.

In answer to Mr. Widdows' question, I would say that the recent improvement in school planning is due to the keen competition existing amongst the best men, both official and private, and the higher standard called for by Educational Authorities and by the profession, who have raised planning, not only in school work, but in all directions, to the level of a fine art.

I did not sign my name to my criticism because criticism should be impersonal, whilst Mr. Widdows would make it personal. It would be more to the point to criticise the criticism than to abuse the critic because he signs himself

A. B. C.

The Right to Erect a Screen.

SIR,—On most estates there is a condition in the lease that hoardings shall not be erected, and on many estates there is a schedule attached to the conveyance of freehold with the same object in view.

If the property in question is in the County of London and the screen is erected, the District Surveyor will inform the London County Council, as such a structure is contrary to sect. 84 of the 1894 Act.

HENRY LOVEGROVE.

A Portable Concert Hall.

SIR,—I am wanting to build in one of the military camps a portable concert hall to hold about 1,000 people. Can you recommend me or inform me who are the best and cheapest people to go to for such a building?

S. D.

[*** We should be glad if any firm willing to carry out the work in question at the present time would send us their name and address for transmission to our correspondent.—ED.]

"Gorseheath": The Hall.

Messrs. Forbes & Tate, Architects. (See page 508.)

GENERAL NEWS.

Appointment.

Mr. Ernest C. Haarer, M.I.Mech.E., has been appointed Chief Engineer and Manager of the London Hydraulic Power Company and Liverpool Hydraulic Power Company, in succession to the late Mr. E. B. Ellington.

The Late Mr. Powell's Estate.

The late Mr. James Crofts Powell, of No. 13, Chester-street, S.W., stained glass manufacturer, of the firm of Messrs. James Powell & Sons, of the Whitefriars Glass Works, E.C., has left estate to the gross value of £19,703.

The R.I.B.A.

The Council, acting on the recommendation of the Finance and House Committee, have resolved that subscriptions due in January, 1915, be remitted in the case of all members and Licentiates who are at that time actively engaged in the defence of the country, and that the publications of the Institute be sent to their home addresses during the period of their service.

A Presentation.

Before proceeding with the business of a meeting of the Salford Education Committee recently an interesting ceremony took place, Mr. Frank Kitson, a pupil at the Royal Technical Institute, being presented with a shield from the Worshipful Company of Plumbers, London. The shield was offered for competition through the Lancashire County Education Committee among the plumbing students of the Technical Schools of the county, and Mr. Kitson had proved himself by test to be the best student plumber taking part in the competition. Mr. Kitson is in the employment of Mr. Alfred Rouse, of Salford, and he has been a student at the Salford Technical Institute for five years. Mr. Kitson is also the winner of a prize of £3 presented by the Lancashire Education Committee.

Town-Planning Schemes.

The President of the Local Government Board has notified his authority for the preparation of five town-planning schemes by the local authorities of Kingston-on-Hull, Great Yarmouth, Doncaster, Edmonton, and Merton and Morden.

The Panama-Pacific Exhibition.

The United States Government has placed its steamship *Jason* at the disposal of all British exhibitors who desire to take part in the Panama-Pacific Exposition, to be held at San Francisco. The *Jason* is expected to sail from Plymouth or Falmouth about January 1. She will go through the Panama Canal and take British art and industry exhibits direct to the exhibition wharf in San Francisco without any charge for freight. British firms desirous of availing themselves of the *Jason* are asked to communicate as soon as possible with the Exposition's London offices, Trafalgar-buildings.

Association of Supervising Electricians.

The inaugural dinner of this Association will be held at the London Tavern, Fenchurch-street, on Saturday, November 28, at 6.30. The gathering bids fair to be a large one, as the Association already comprises over seventy members. The President, Mr. A. H. Dykes, M.Inst.E.E., will preside and take the chair at the concert which follows. Further particulars may be obtained from the Hon. Secretary, Mr. C. J. Banister, 14, Pulborough-road, Southfields.

"Gorseheath": West Elevation.

Messrs. Forbes & Tate, Architects. (See page 508.)

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ILLUSTRATIONS.

Dalziel School, Motherwell.

WE illustrate this excellent design, the outcome of a recent competition assessed by Sir J. Burnet.

Cathedral Church of St. Paul, Namirembe Hill, Kampala, Uganda.

THE illustrations are taken from some of the ¼-in. scale working drawings of the building now in progress, internal and external perspectives of which have already been published in the *Builder*. The walling is of local made brick, the diagonal arches of the vault are of flat tiles; the window frames, arched heads, the springers and key blocks of the vault are of cast cement concrete. The filling of the vaulting is of concrete armoured with wire mesh. The central columns are of local stone. The wooden roofs above the vaulting are not shown on these details.

"The Paddock House" and "Gorsceath," Gerrard's Cross, Bucks.

"The Paddock House."

THE house is built of dark red-brown hand-made sand-faced bricks and tiles, and all the internal and external woodwork is of pitch-pine stained dove-grey colour.

All windows are steel casements with the sills throughout.

"Gorsceath."

The house is built of grey-brown hand-made sand-faced bricks with red-brown quoins, bands, and jambs to windows and doors.

All windows are steel casements with the sills throughout.

In carrying out the work the partition wall between study and corridor was entirely omitted, and the brickwork over-carried by deep oak beam, and glass doors placed between vestibule and corridor.

MEETINGS.

SATURDAY, NOVEMBER 28.

Institution of Municipal Engineers.—Sixth annual general meeting. 11.45 a.m.

MONDAY, NOVEMBER 30.

University Extension Lecture (at the Victoria and Albert Museum).—Mr. Banister Fletcher on "French Mediæval Architecture." 4.30 p.m.

TUESDAY, DECEMBER 1.

Institution of Civil Engineers.—Papers to be read: (1) "Tests of Reinforced-Concrete Structures on the Great Central Railway," by Mr. J. B. Ball, M.Inst.C.E.; (2) "Corrosion of Steel Wharves at Kowloon," by Mr. S. H. Ellis, M.Inst.C.E.; (3) "Concreting in Freezing Weather and the Effect of Frost upon Concrete," by Mr. J. Hammersley-Heenan, Assoc.M.Inst.C.E. 8 p.m.

Illuminating Engineering Society.—Discussion on "Illuminating Engineering in War-Time: Some Lessons to be Learned from the Present Lighting of London," will be opened by Mr. Leon Gaster. 8 p.m.

WEDNESDAY, DECEMBER 2.

Royal Archæological Institute.—Miss Annie Abram, D.Sc., on "Misericords in Bruges Cathedral." 4.30 p.m.

Royal Sanitary Institute.—Inspection and demonstration at Harrison Barber & Co.'s Knacker's Yard, Winthrop-street, Whitechapel. 3 p.m.

THURSDAY, DECEMBER 3.

University Extension Lecture (at the British Museum).—Mr. Banister Fletcher on "The Temple of Diana and Ionic Temples." 4.30 p.m.

Society of Antiquaries.—Ordinary meeting. 8.30 p.m.

University Extension Lecture (at the Victoria and Albert Museum).—Mr. Kaines Smith on "Art and History: War." 3.30 p.m.

FRIDAY, DECEMBER 4.

Town Planning Institute.—Messrs. E. R. Abbott and F. M. Elgood on "The Ruislip-Northwood Scheme." 8 p.m.

Glasgow Architectural Craftsmen's Society.—Mr. T. G. Gilmour on "Reinforced Concrete." 7.45 p.m.

FIFTY YEARS AGO.

London Dust.

"DUST" seems to be increasing in value, and instead of being a source of expense to parishes has been made a means of profit. Nevertheless, the impost of "beer money" is continued, the contractors still underpaying their men. This presses heavily upon the poorer classes, pent up in crowded neighbourhoods, where it is most needful that the refuse should be removed. In those neglected spots there is a difficulty in paying the beer money, and the men drive their carts to where they are more certain of their perquisites.

Now would seem to be a favourable time for the removal of this abuse. The parish authorities cannot complain of any additional and burdensome cost; let us trust, therefore, that in the granting of dust contracts, boards will make it a provision that the men who collect the dust and drive the carts shall be paid a fair amount of wages, and that the beer money shall be entirely abolished. This may seem to some to be a small matter; experience, however, shows that in many ways it will be of advantage to health.

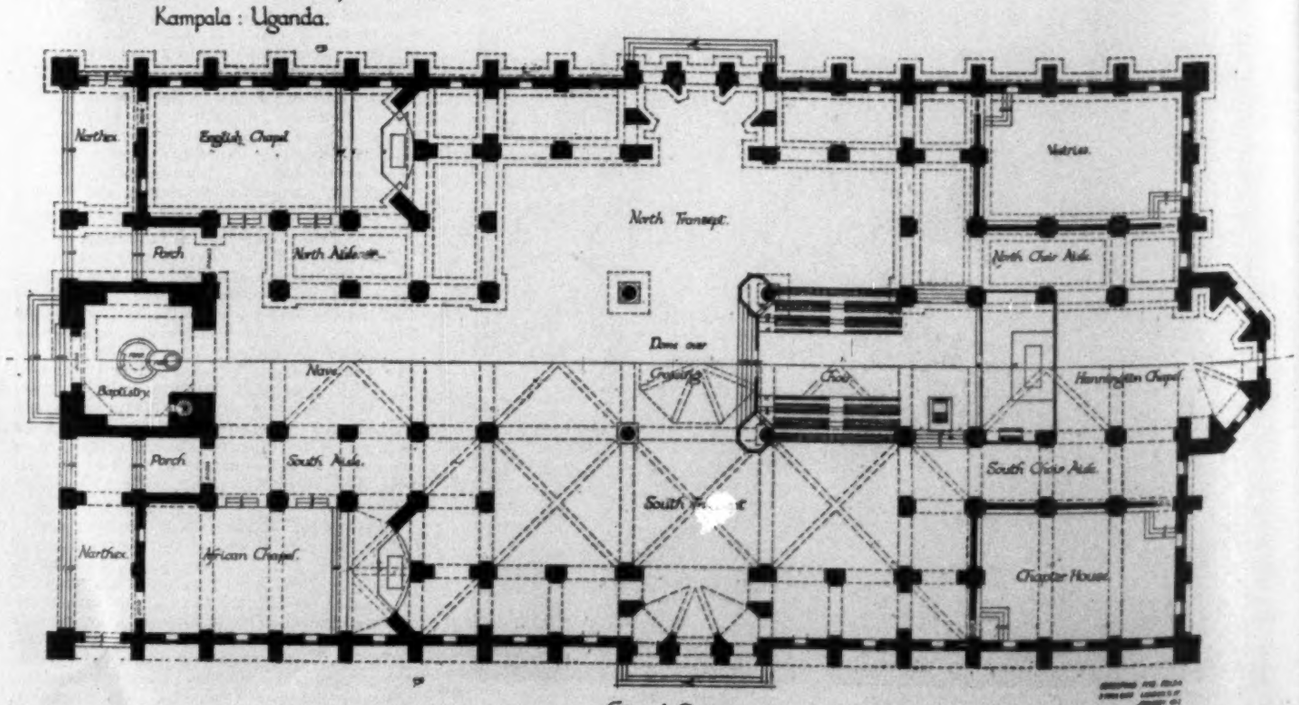
If an improved system of conveying the refuse from the homes of the poorer classes yield a saving of thirty or forty lives per annum in the metropolitan population, and prevent, to some extent, the spread of pestilential diseases, it will be work well done. The proper removal of the dust, also, leads to tidiness; for with the matters which have been thrown away spread over the yards, in consequence of the dust-bins not being able to contain them, there is not much encouragement for cleanliness. In wet weather, especially, the dirt is brought again into the house, and so one evil leads to another.

[*** We give the above extract from the *Builder* of November 26, 1864.]

CRYSTAL PALACE SCHOOL OF PRACTICAL ENGINEERING.

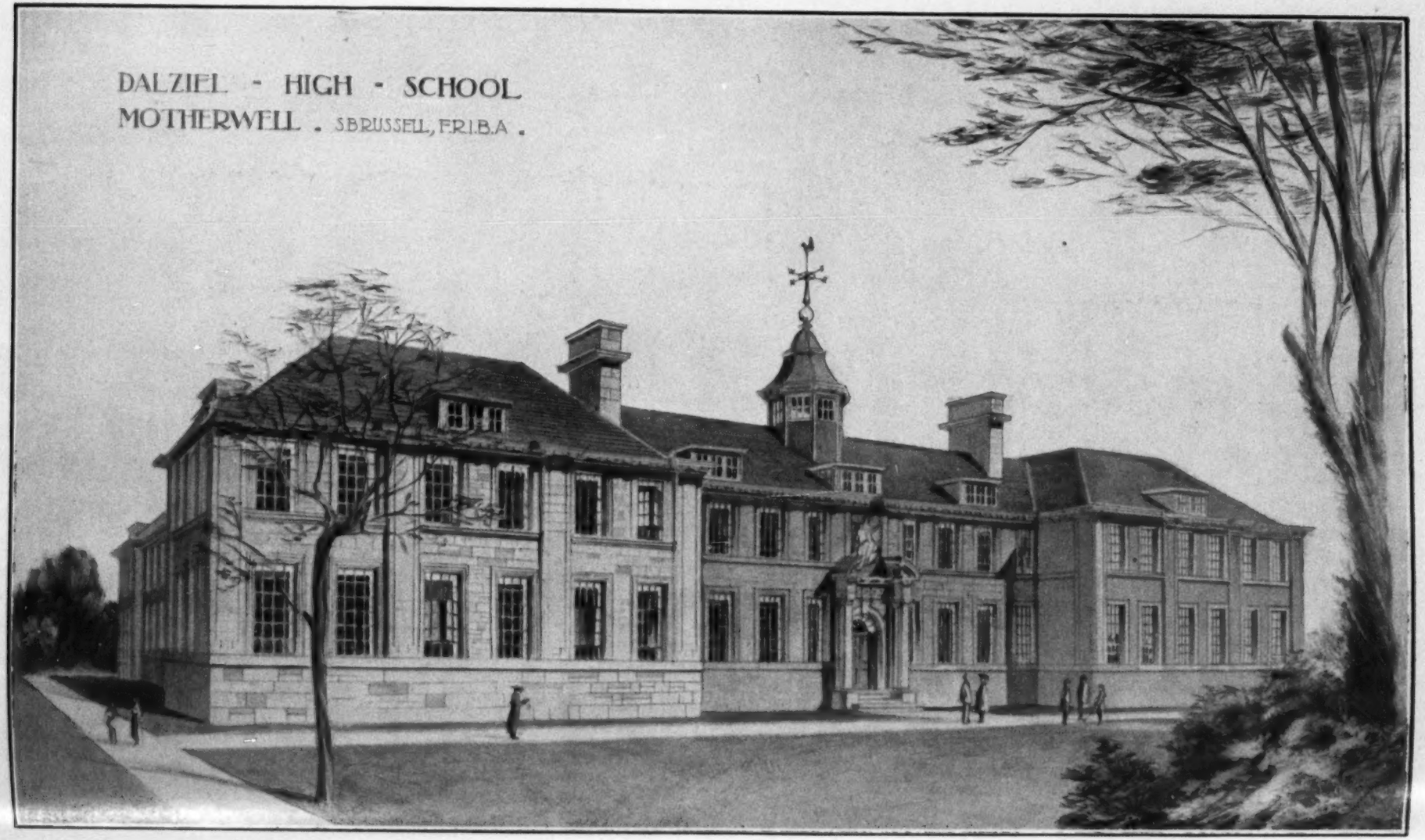
We are informed that the present occupation by the Admiralty of the Crystal Palace does not in any way affect this School. The work of the School, which is now entering its forty-third year, is being carried on as usual, and the School is being developed and extended under the auspices of the Trustees.

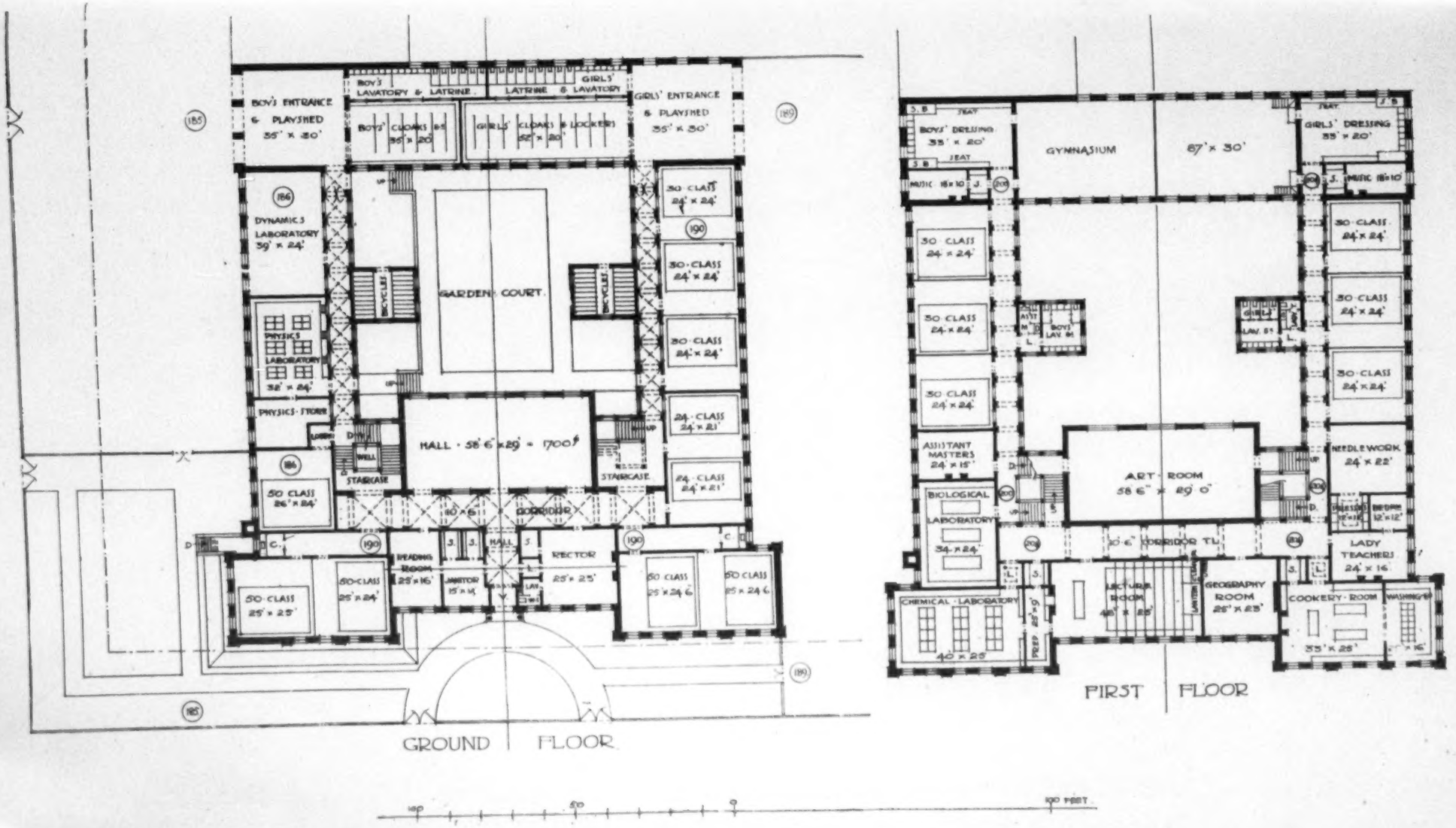
CATHEDRAL CHURCH of SAINT PAUL.
Kampala: Uganda.



Ground Plan.

DALZIEL - HIGH - SCHOOL
MOTHERWELL . SBRUSSELL, F.R.I.B.A .

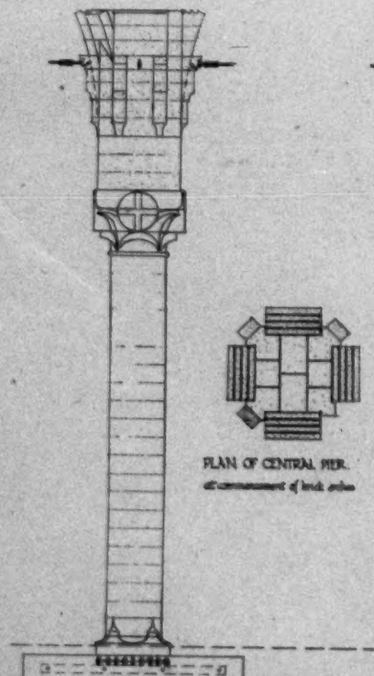



BOYS' ENTRANCE & PLAYSHED 35' × 30'
BOYS' LAVATORY & LATRINE
GIRLS' LATRINE & LAVATORY
GIRLS' ENTRANCE & PLAYSHED 35' × 30'
BOYS' CLOAKS 85' × 20'
GIRLS' CLOAKS & LOCKERS 82' × 20'
DYNAMICS LABORATORY 39' × 24'
PHYSICS LABORATORY 38' × 24'
PHYSICS STORE
GARDEN COURT
CYCLES
CYCLES
HALL · 58'6" × 29' = 1700 ft²
STAIRCASE
STAIRCASE
WELL
50 CLASS 24' × 24'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
24 CLASS 24' × 21'
24 CLASS 24' × 21'
50 CLASS 26' × 24'
50 CLASS 25' × 25'
50 CLASS 25' × 24'
READING ROOM 25' × 16'
JANITOR 15' × 14'
HALL
RECTOR 25' × 25'
CORRIDOR
50 CLASS 25' × 24'6"
50 CLASS 25' × 24'6"
GROUND FLOOR
BOYS' DRESSING 35' × 20'
GYMNASIUM 87' × 30'
GIRLS' DRESSING 35' × 20'
MUSIC 18' × 10'
MUSIC 18' × 10'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
50 CLASS 24' × 24'
ASSISTANT MASTERS 24' × 15'
ART ROOM 58'6" × 29'0"
NEEDLEWORK 24' × 22'
BIOLOGICAL LABORATORY 34' × 24'
LADY TEACHERS 24' × 16'
CHEMICAL LABORATORY 40' × 25'
LECTURE ROOM 40' × 25'
GEOGRAPHY ROOM 28' × 25'
COOKERY ROOM 35' × 28'
FIRST FLOOR
100 FEET

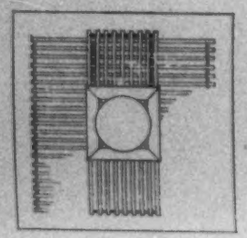
DALZIEL HIGH SCHOOL, MOTHERWELL.—Mr. S. B. Russell, F.R.I.B.A., Architect.

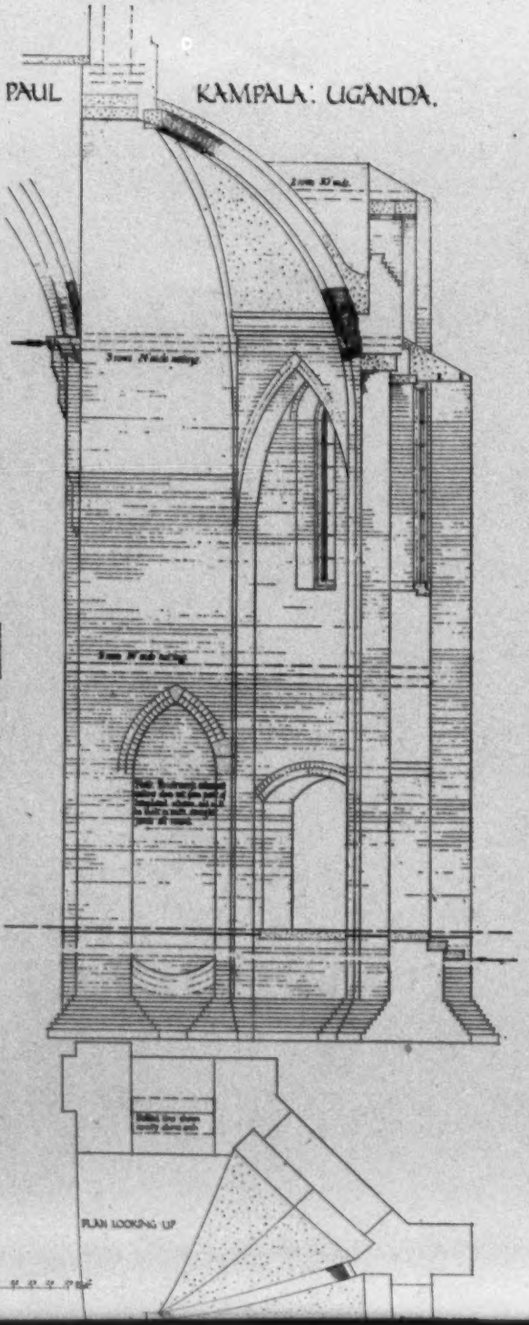
CATHEDRAL CHURCH of SAINT PAUL KAMPALA: UGANDA.

The Central Piers and
The Transept Porches.



PLAN OF CENTRAL PIER.





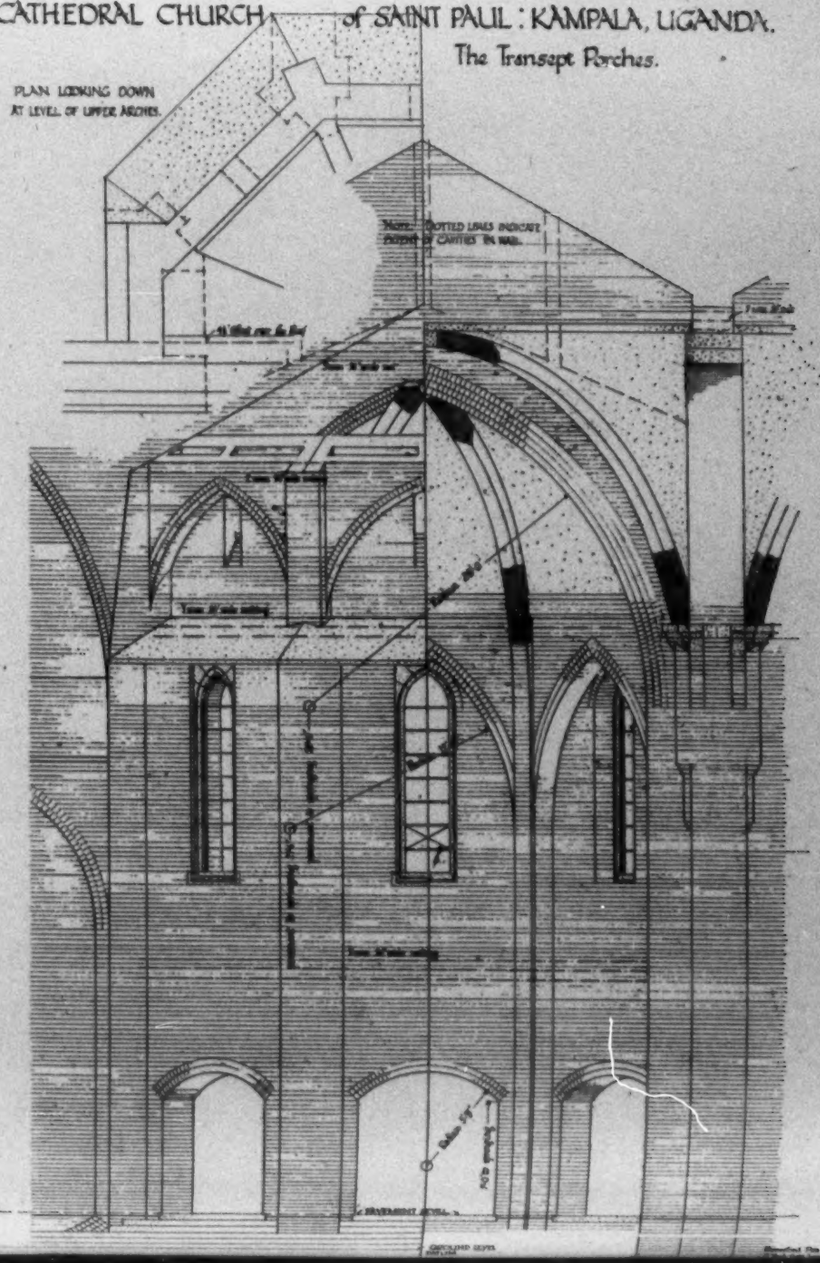
PLAN LOOKING UP

SCALE:

CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

The Transept Porches.

PLAN LOOKING DOWN
AT LEVEL OF UPPER ARCHES.

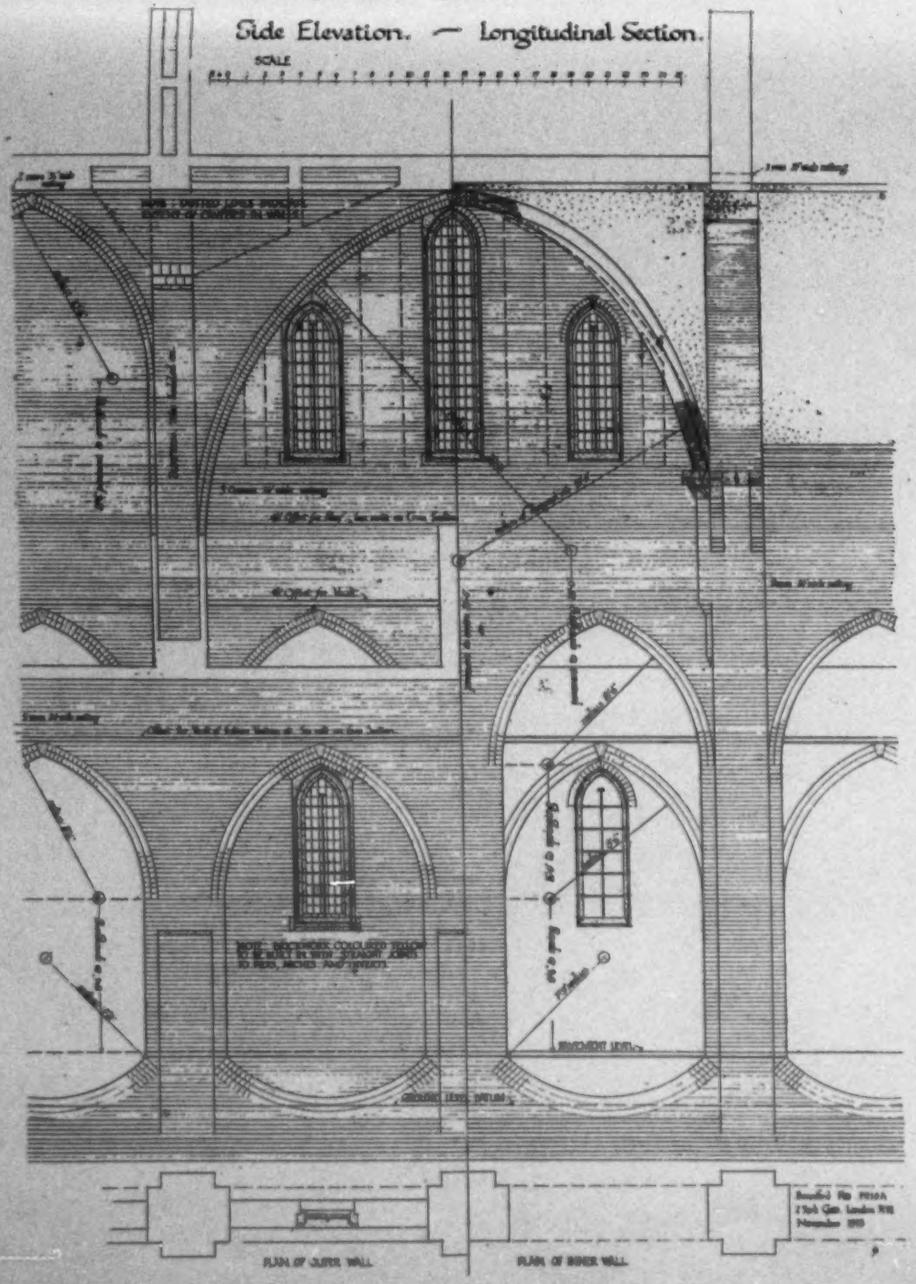


CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

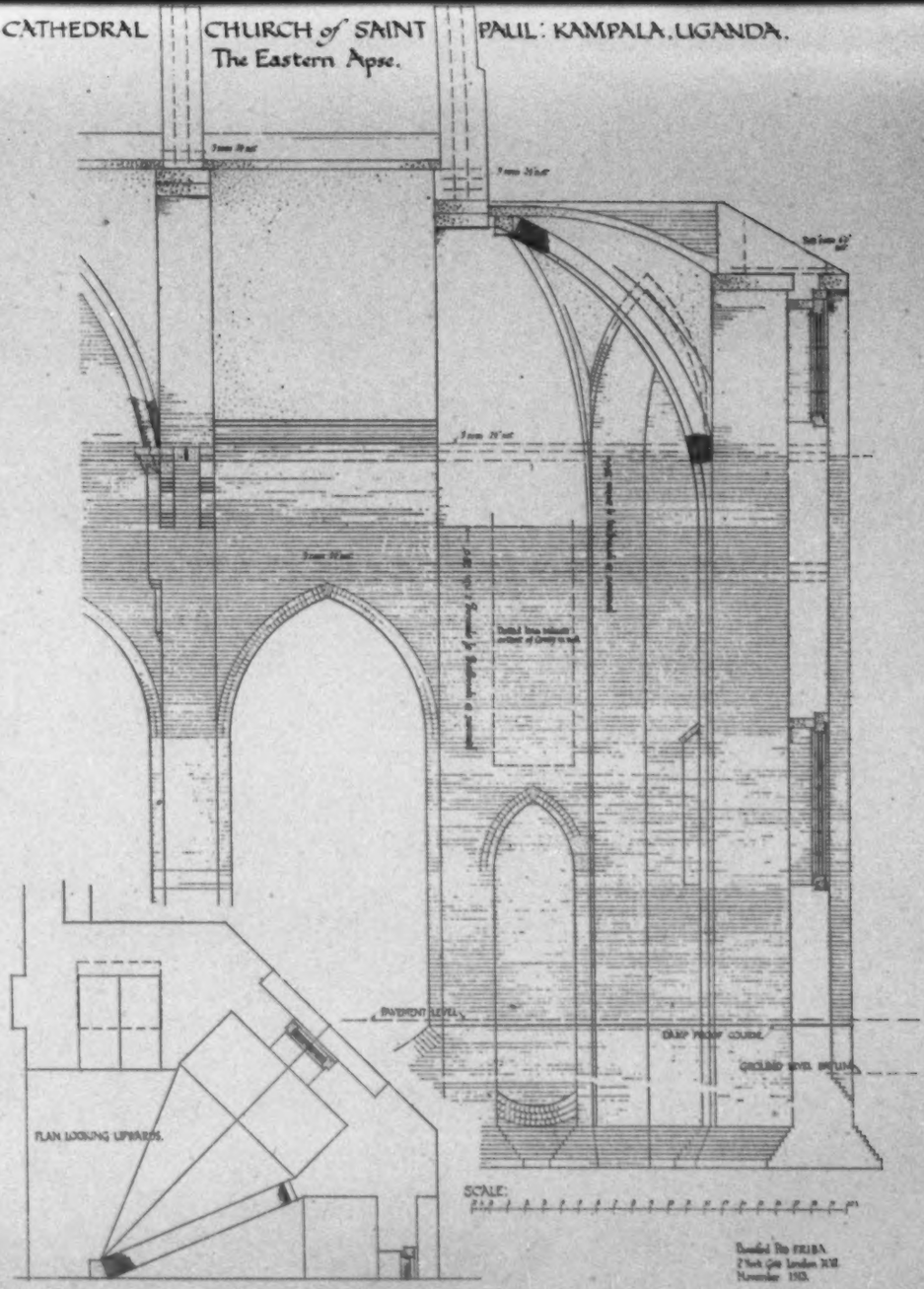
Side Elevation. — Longitudinal Section.



Trevelyan Rix FRIBA
2 York Gate London NW1
November 1953

CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

The Eastern Apse.



Trevelyan Rix FRIBA
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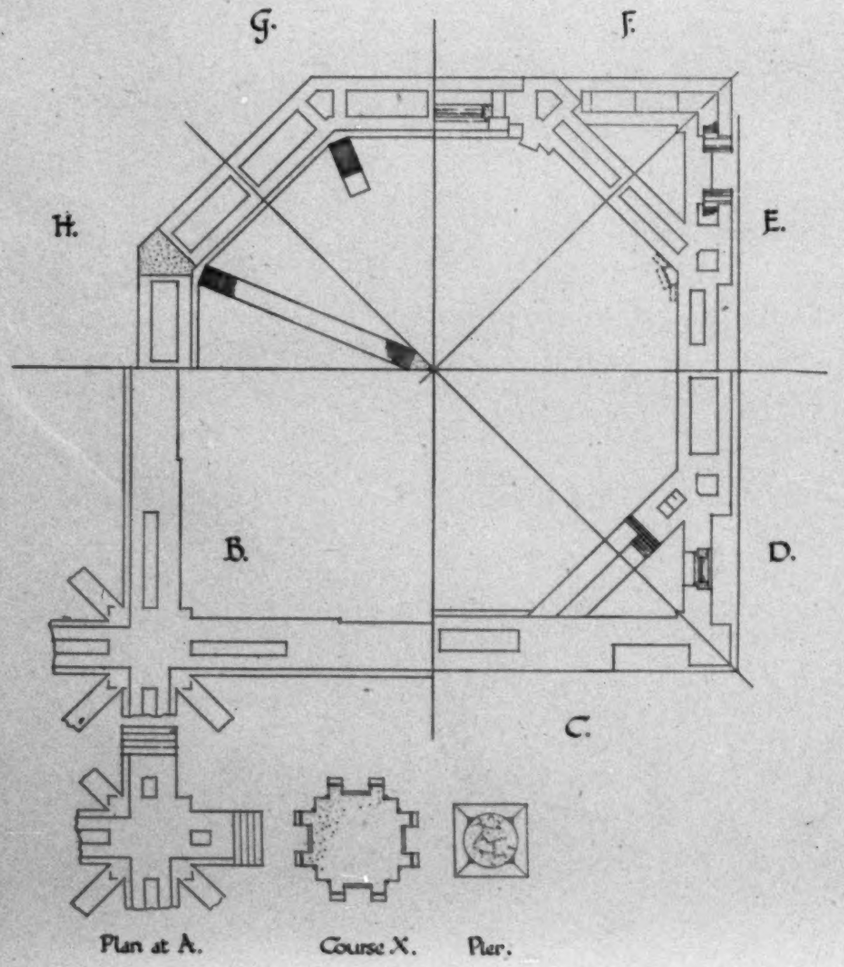
November 1953

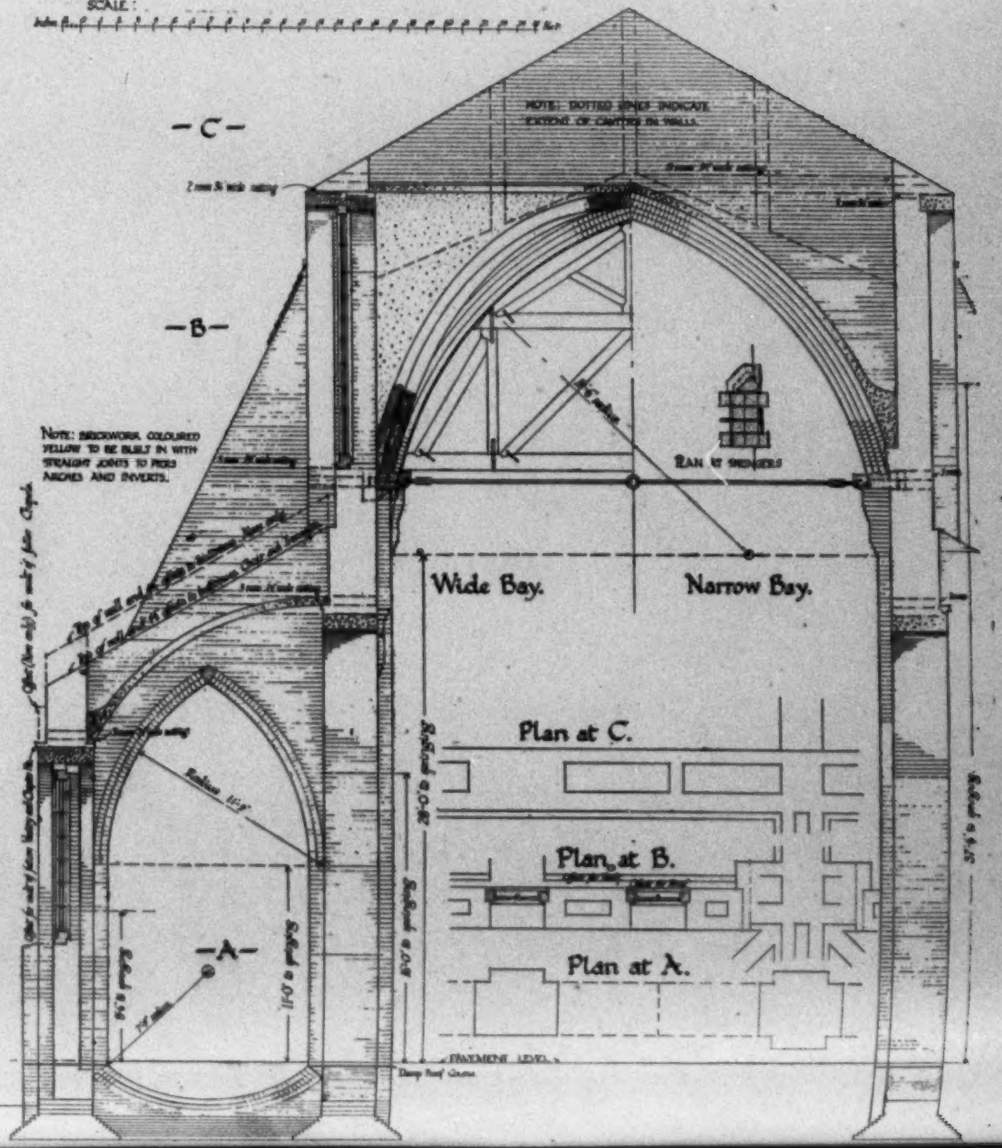
CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

The Lantern over Central Space: Detail Plans.

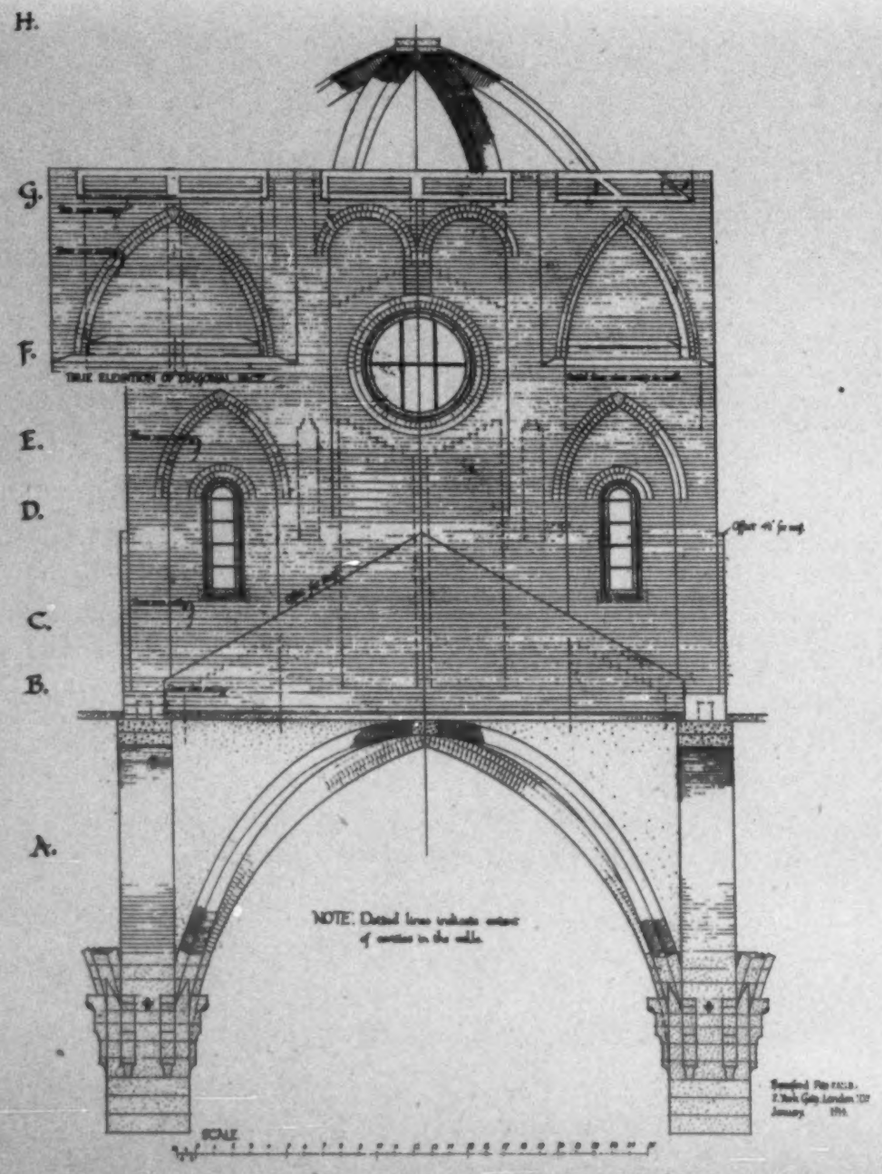


CATHEDRAL CHURCH of SAINT PAUL: KAMPALA, UGANDA.

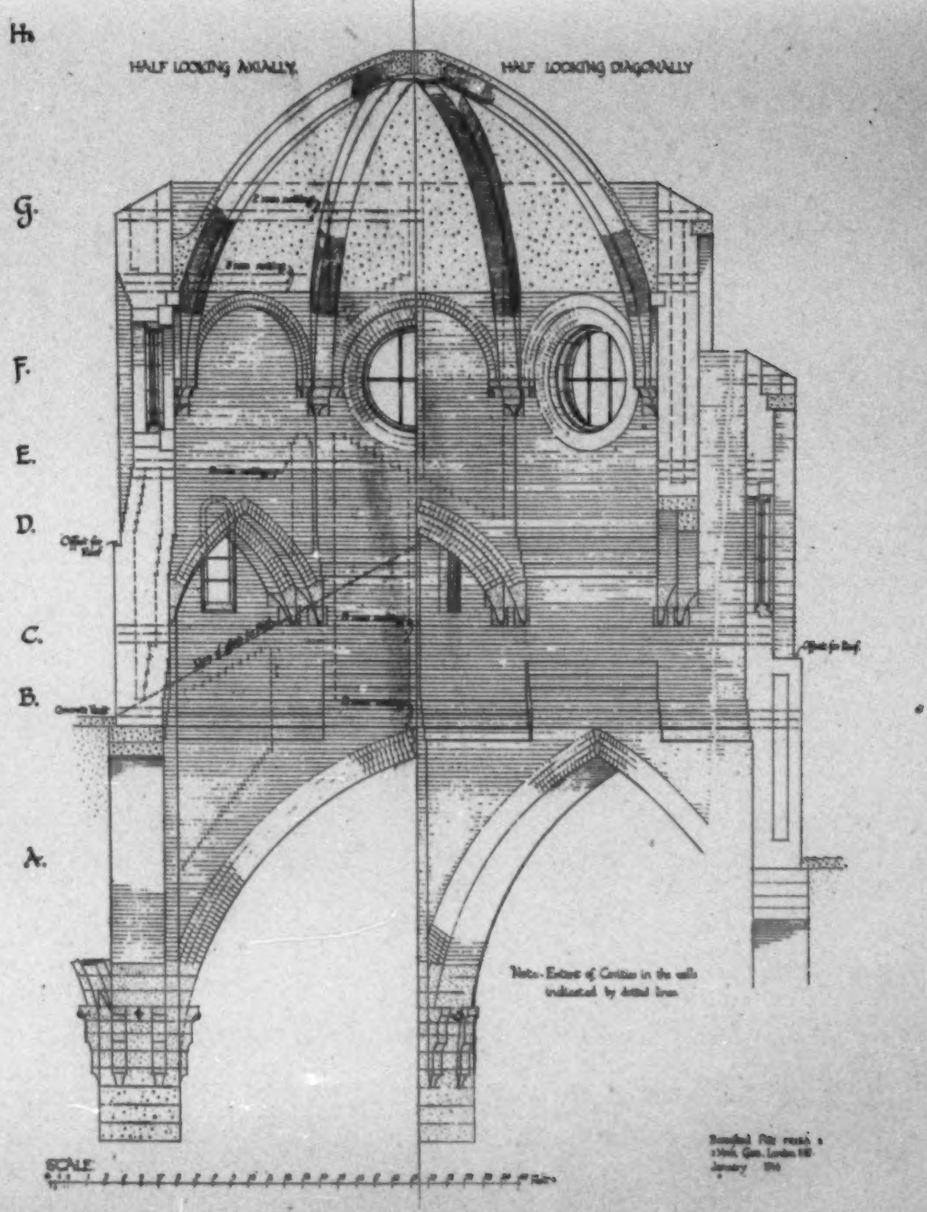
Cross Section.

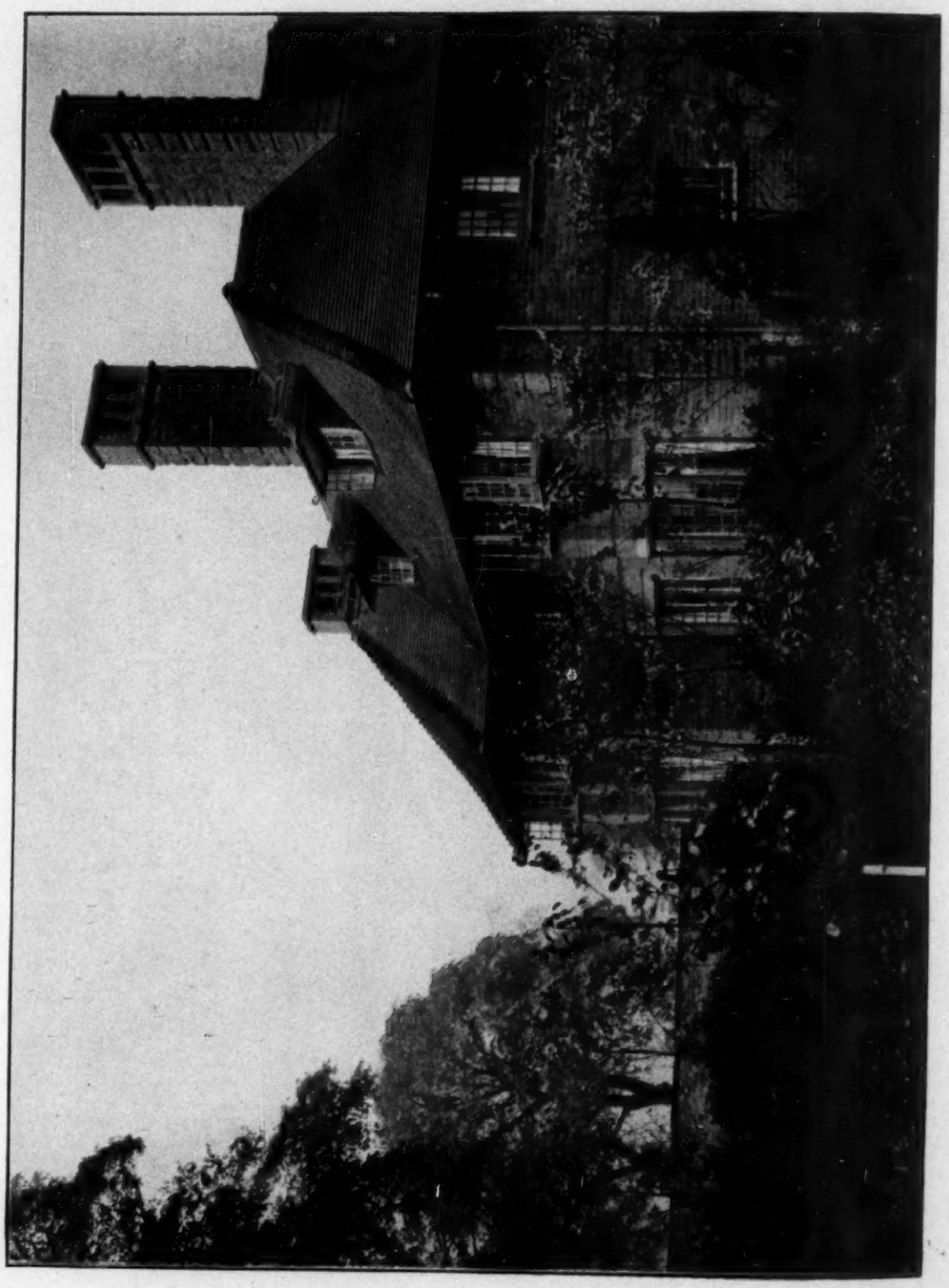


CATHEDRAL CHURCH of SAINT PAUL: KAMPALA: UGANDA.
The Lantern over Central Space: Detail Elevation.



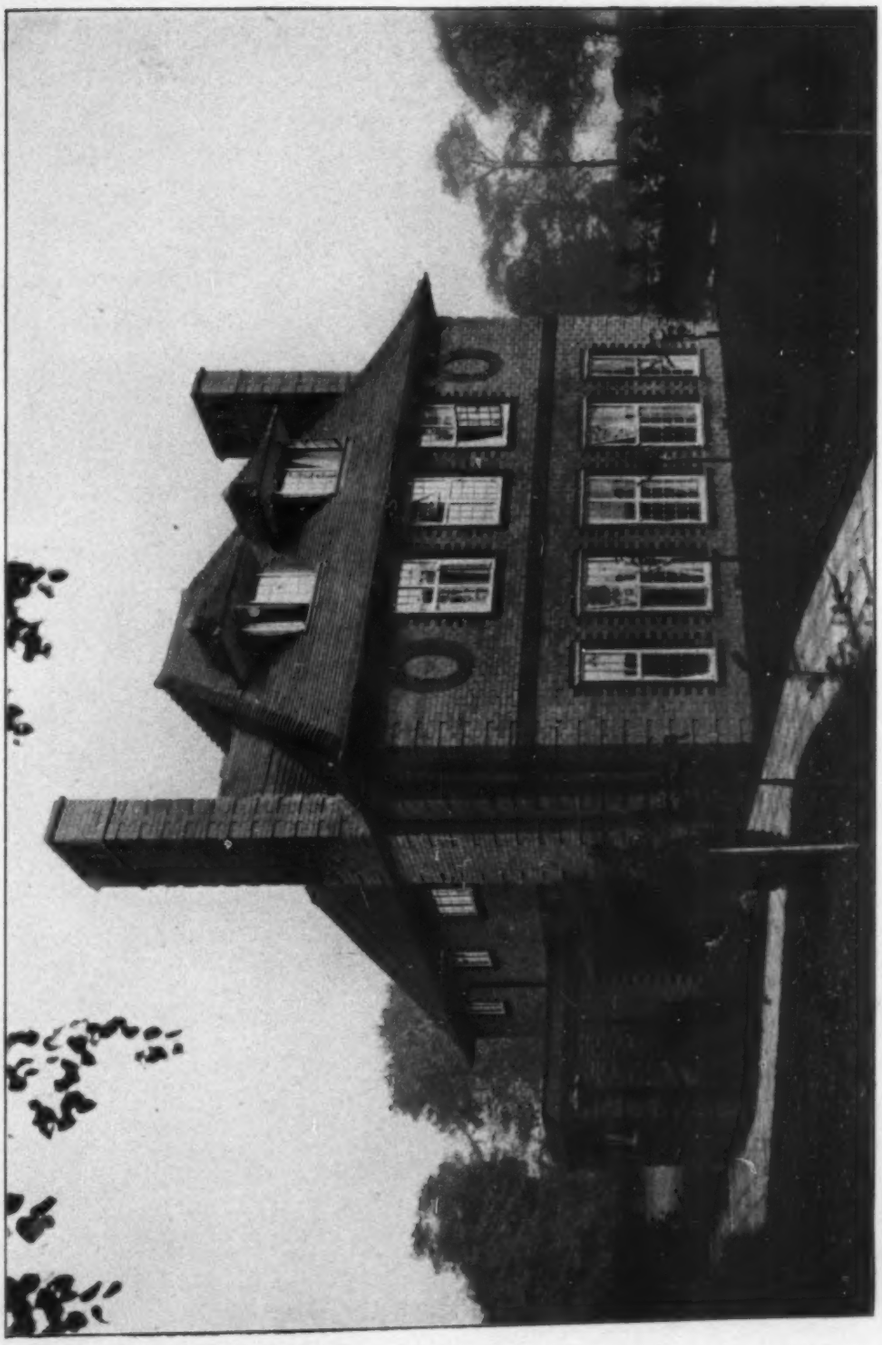
CATHEDRAL CHURCH of SAINT PAUL: KAMPALA. UGANDA.
The Lantern over Central Space: Detail Section.





THE PADDOCK HOUSE, GERRARD'S CROSS: SOUTH ELEVATION.

MESSRS. FORBES & TATE, ARCHITECTS.



GORSEHEATH, GERRARD'S CROSS: SOUTH ELEVATION.

MESSRS. FORBES & TATE, ARCHITECTS.

MESSRS. FORBES & TATE, ARCHITECTS.

ARCHITECTURAL SCHOOLS SECTION.

AN ARCHITECT'S LETTERS TO A STUDENT:

THE THIRTEENTH LETTER.*

On Starting a Practice.

I HAVE lately been thinking that the time must soon come when you will contemplate shaking off the shackles of thraldom and essaying to wrest from fortune that share of goods and honours which shall represent your real individual value. This stage of evolution is an interesting one, to be undertaken with confidence not born of youthful temerity or misplaced conception of your ability, but the result of considered judgment. So we will just sit down and look at the proposal from all its aspects. An essential assumption is that you now possess sufficient knowledge and experience to deal to the satisfaction of a client with any small piece of work which is likely to fall to your lot to begin with. That you can carry out in all its phases a small house, an alteration, a survey for dilapidations, settle a builder's account with justice, and lead your client into sound paths without coercing him. If you do not feel able to fight all the authorities under the Metropolitan Management Acts, or to undertake the design of a large hotel, you need not have qualms; everyone must make a beginning, and it is a kindly law of Providence that the calls on knowledge are largely proportional to experience.

There are many pros and cons to be considered quite apart from questions of ability, and, of course, the financial aspect stands foremost. In whatever way you start you must be able to "hang on" if needs be. You are proposing to discard a small certainty for a larger uncertainty in the way of income, and you must reflect not only upon your immediate necessities and added expenses, but on any private financial calls which are likely to occur before you are established, though I presume that as a bachelor these will not be serious. Now, as to the ways of starting a practice. You may buy one, buy a partnership, or start out to make your own connection. Again, you may partially practise by arranging with a principal to have certain time for your private work while otherwise his assistant. Which of these courses you adopt will depend on your prospects of work and financial position. Partnerships are serious matters, in that they involve usually considerable capital expense, and should not be entered into without a full knowledge of the personality of the colleague you contemplate joining and a professional audit of the income to be shared. In any event a short trial of a few months before any final agreement is signed is generally desirable. I refer, of course, to partnership with men in established practice; naturally a venture jointly with a colleague on your own footing is in a different category. If you are fortunate enough to have one or two friends who are prepared to give you commissions, you may more hopefully adopt the course of starting alone, though it will be well to consider whether such friends are isolated individuals, who want a piece of work done once in a lifetime, or men in public positions who can recommend you. The start is the difficulty, and the friendship of a single public man has often just given the start which has led to ultimate success. The early roots are small, and patience is necessary; but once established, given a good soil, they ramify with increasing rapidity. The least venturesome course is the last, by which you retain a partial salary and have few running expenses. With a principal whom you know well, and who has confidence in you, such a scheme works satisfactorily, but it is always wise to make things as clearly defined as possible, and to be assured that the arrangements will not only prevent friction between you and him, but be such as to give you such reasonable scope for acting alone as may serve your own interests and meet your clients' requirements. You must, for example, stipulate that your name appears in suitable situations to direct callers, and that on occasion you may be able to have private interviews. I do not think that clients think the less of a young man who does his work in such circumstances in his first years of practice, and the advice and help you will at times derive from such association with a more experienced man is an asset worth considering.

If, however, you decide to break free from the yoke entirely, let me advise you to consider taking an office in association with someone else. If you can arrange this you will find it a great help in many ways, particularly financially. Not only will your rental be less, but you can combine in an outer office and possibly in an assistant, and when you are superintending work outside your colleague will often be in and able to deal with such emergencies as are beyond the capacity of "the staff." Again, it is a benefit and often a solace in times of difficulty or slackness to have even an unattached fellow professional whom one can turn to. There will be times when solitude presses sadly, especially if work tarries, and, apart from the value of the exchange of experiences, an occasional break for merely social distraction will not be time thrown away.

Now I have done. Turn the matter over well in all its aspects, start out not too heavily handicapped by necessary expenses, bring some grit and staying power, cultivate an appreciation of the humorous aspect of small adversities, and you may look forward, I am sure, to many pleasurable times, interesting experiences, and eventual prosperity.

THE FOURTEENTH LETTER.

The Genus "Builder."

So, friend, you are beginning to find that there are responsibilities attached to independence, such as you wot not of; such are the gifts of that goddess so scoffed at by youth—Experience. But before discanting on your theme let me congratulate you on your new step and surroundings, as far as I can appreciate them. A buffer state shared by your colleague and a private office sound well, though you remark that the latter is too small to swing a cat in, to which I will make the rejoinder of, I think, Laurence Sterne in cheering a friend in like case. "After all," he remarked, "who wants to swing a cat?" and certainly the vogue languishes.

But now to business, though I fear you have practically asked for a thesis on builders and their varieties. Like other groups of humanity, the gradations are wide. In my own experience, at the top I would, perhaps, place an honest old countryman, who, after contemplating my careful plans upside down for some moments, said in inquiring innocence, "What be I to do with these, maister?" and at the bottom a "director," who, replying to my inquiry regarding progress, said that the manager of a certain sub-department of his firm might perhaps have some knowledge of the work referred to, but he had not.

I am much afraid that the old-fashioned builder, the real master craftsman, is dying out owing to new methods and combinations of labour. He is a delightful person; he will treat his jobs as his children taking a pride in their development. Like others, he must live, but the greed of gold is absent. If there is a doubt the work generally has the benefit of it. "I know that's what 'e'd like, and 'e's been a good friend to me," has perhaps been the comment when some small obscure point has arisen capable of construction for or against the architect's client. This type of man will do his work much as he likes, but honestly and by methods in which he was trained by his father before him. He will not be hurried; threats as regards delay and clauses in contracts have no terrors for him, for he has no truck with the law. If he thinks your construction can be bettered he will tell you so, and expect you to thank him as a colleague mutually interested with himself in turning out a creditable piece of work.

As a correspondent he is incorrigible; he writes many of his own letters after working hours, and he detests the process, and sooner than report progress he will go on and chance your possible displeasure, which implies either very complete and readable drawings or fairly frequent visits. I have known such a man on presenting an account say, "I think I have included all the extra things I'm entitled to, sir. Can you think of anything else?" A refreshing attitude which demands every consideration.

Now for the other end of the scale—the business man. He is, or calls himself, a director of a company, and his sole object is to make a job pay with the maximum of merit necessary to ensure possibilities of future tendering. He knows little or nothing of actual building, and if you ask him whether he has borne in mind that you have sent a revised detail for the staircase window treatment he will smile and tell you that no doubt the matter is being attended to in the proper quarter. Usually his visits are mere friendly calls, asking airily for a certificate which is larger in amount than that to which he is entitled. He will sublet everything he can; in fact, in his most advanced form he becomes merely a business agent for those responsible for the various trades to whom he farms out your building piecemeal, taking his profit and giving them the responsibility under contracts with himself which he is very unwilling to disclose. This procedure may add greatly to the architect's difficulties; if all goes well nothing is heard of these firms, but when troubles arise the architect may be directly approached by them, when, in *ad misericordiam*, appeal will be made that they have honestly done what they undertook to, had no knowledge of the only contract you are concerned with, and will be heavy losers if no allowances are made to them. Extras will flourish "like a green bay-tree," and at the stage of their discussion the director will disappear and be represented by his "familiar," an estimating clerk well versed in all the cunning of his trade. He will prove to you that the innocent little addition in brickwork is technically underpinning, and must be paid for at this rate, and that your change in the position of a rainwater pipe has doubled the cost of cement screeding on a flat.

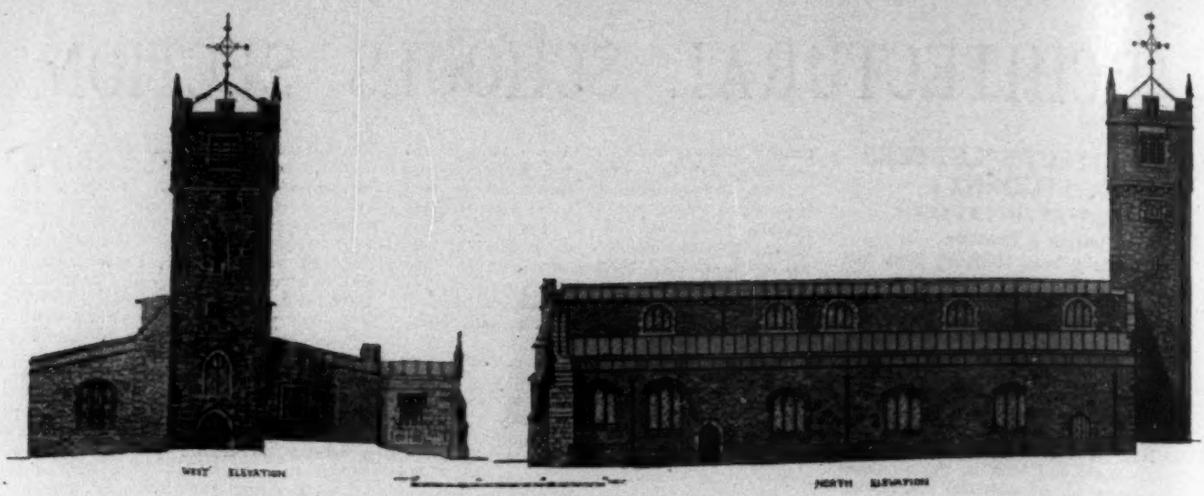
I am, of course, taking an extreme and at present exceptional case, but the trend of building is in this direction, and the novice should be on his guard. And what is the moral? No care in the selection of builders will prevent incomplete drawings, ill-thought-out specifications, and prodigal alterations when work is in progress from recoiling on the head of the architect, and, although a builder's attitude and experience may be a very great help to a young professional man, his province is to carry out instructions, not to advise and do unprofitable work. Before asking for tenders, therefore, have everything ready; make it clear to your client that if he requires changes prices must be thereafter adjusted, and then obtain advice and recommendations from other professional men—always readily given—as to the firms you propose to have dealings with.

* For previous letters see our issues for March 27, April 24, July 24, August 28, and October 23 last.

THE LEEDS SCHOOL OF ARCHITECTURE.

WE give herewith some additional examples of measured work from the Leeds School of Architecture which reached us too late for insertion in our last School Section. We are afraid that fewer of our students now measure and sketch than was the case twenty years ago, and it is to be regretted that this is so, since no form of study is so valuable as measuring actual buildings, since it gives the student a better insight into the principles of design and construction than anything else.

The architect in actual practice has generally little time for sketching and none for measuring, but his work benefits by his having gone through a long apprenticeship in which he has measured a fair number of old buildings and transmitted his measurements to paper.



Church of St. Michael, Beetham, Westmorland.

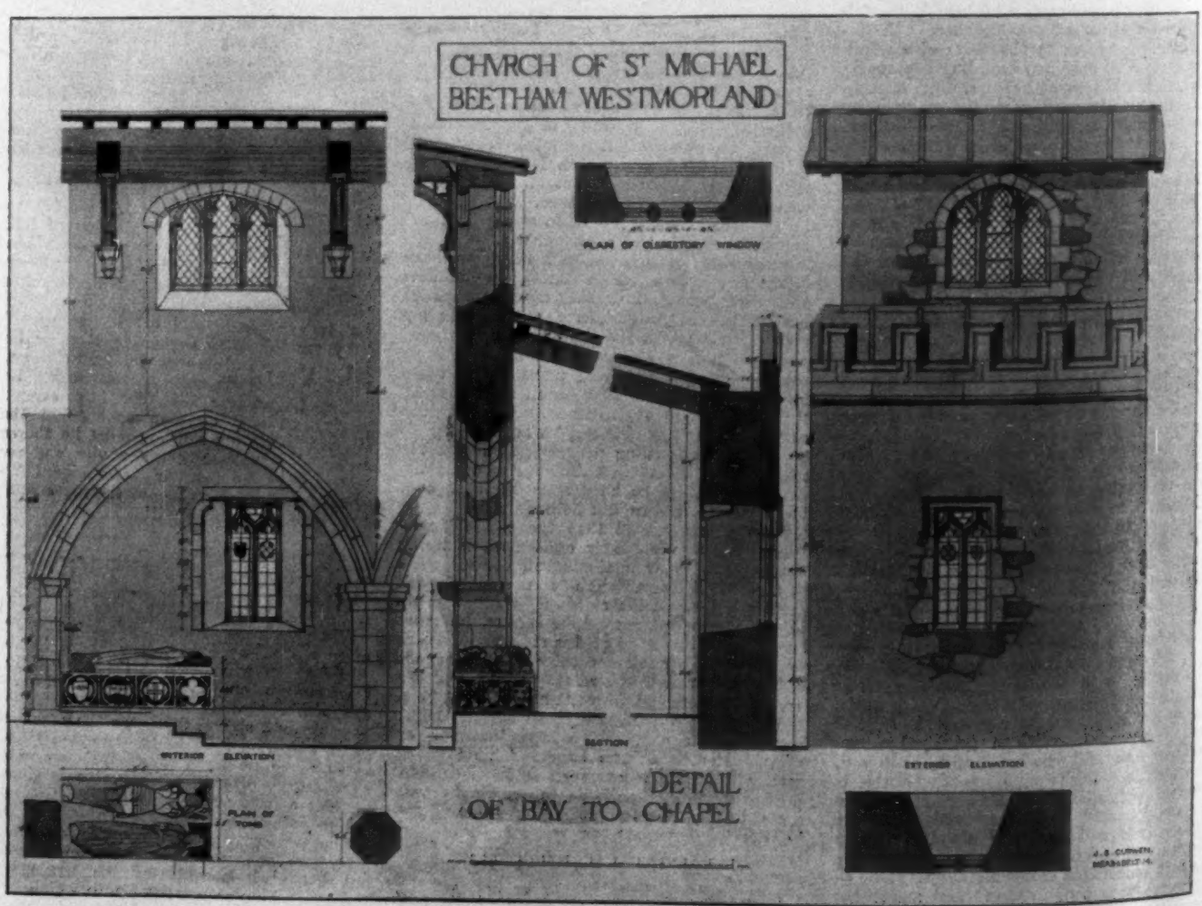
Drawn by Mr. J. S. Curwen.

The high quality of our best Gothic is intimately connected with the fact that several generations of architectural students have added to our actual knowledge of mediæval architecture, learning to appreciate much of its spirit in the process. Nor is it necessary to confine our choice to mediæval buildings, since the work of the Renaissance masters can be with equal advantage studied by measuring the buildings of that epoch. The time and labour involved often seem excessive compared with the result on paper, but it is not in reality so, for the student who has done a large amount of measuring and plotting knows his subject first hand, while he who has not gone through the mill, but has obtained his knowledge through the easy agency of books and illustrations, always misses much that is worth knowing. The little Westmorland church we illustrate is not a building of outstanding merit or originality, but it is possible that the student who has measured and sketched it would be by that means helped to design a building of originality and merit, for measuring not only attracts our attention to what is good, but teaches us to avoid mistakes in design and construction. And it must always be remembered that the expert measurer learns by experience how to get his data with a minimum amount of time and trouble without a sacrifice of efficiency. In later years the architect who has measured acquires the art of studying a building without measuring it, but his ability to do so depends on the previous training he has had.

We are informed that Mr. Curwen is at present serving in the North Lancashire Regiment, and submitted the drawings to the R.I.B.A. in support of an application for exemption from the Intermediate Examination, which, under ordinary conditions, he intended taking in November.

FIRST ATELIER OF ARCHITECTURE.

Although the Atelier has naturally suffered by the absence of M. Chaurés and by the loss of so many of its members who have enlisted in the Army, the decision of the Committee to carry it on during the war seems to be fully justified. Several new members have joined and various modifications have been made, and will continue to be made when necessary, to deal with the situation caused by the war. Amongst other things, a life class has been started, and has proved a great success. It is hoped that this will develop in such a way as to have a direct bearing on the study of architectural composition. The work of the Atelier during the past month has been somewhat modified owing to the endeavour to replace Professor Geddes' Civic Survey Exhibition, which was sunk by the *Emden* during its voyage to India.

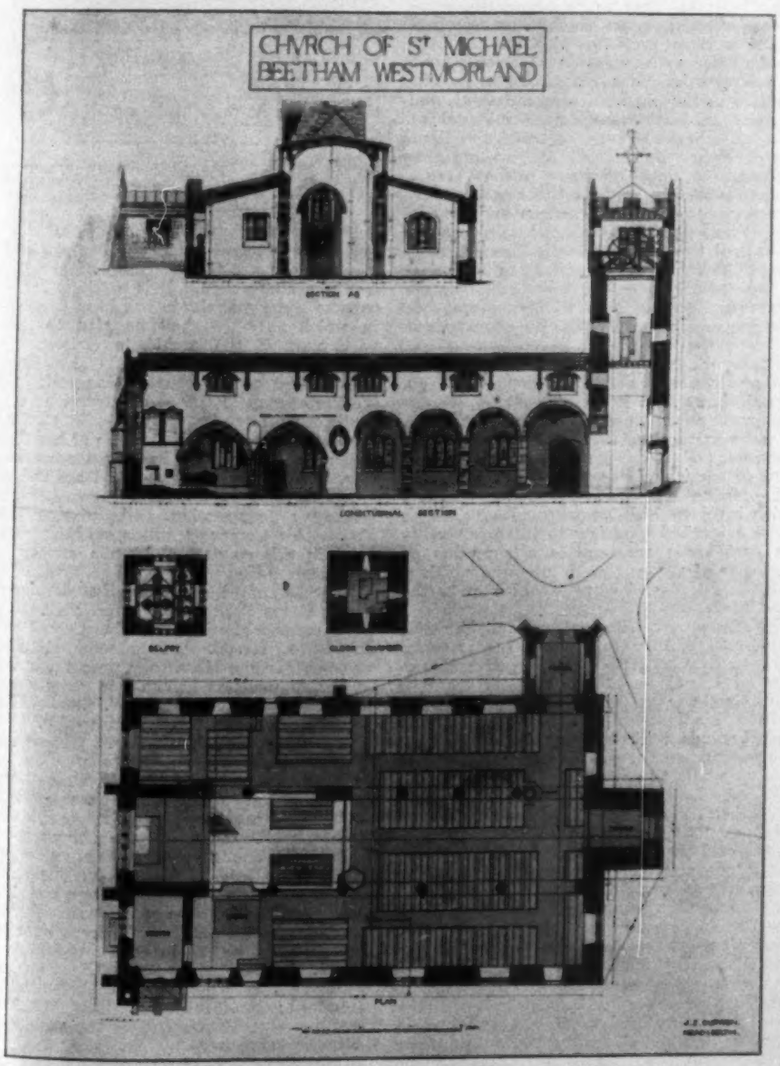


Measured and drawn by Mr. J. S. Curwen,
(Leeds School of Architecture.)

Church of St. Michael, Beetham, Westmorland.
Measured and drawn by Mr. J. S. Curwen.

Accommodation having been offered at the Atelier, space was provided for some half-dozen men sent there by the Geddes Exhibition Committee. In order to give the members an opportunity of gratuitously helping the Committee a special programme was drawn up as an alternative to the usual fortnightly twelve-hour sketch. This programme consisted of a bird's-eye view of any village or town with which the members might be personally acquainted. The drawings were judged on the skill with which the principal features were delineated. The response to the suggestion was most gratifying, and the Geddes Exhibition will be richer by ten drawings of considerable value, while the members have obtained experience of an aspect of architecture not usually included in the curriculum of the Schools. "Mentions" were awarded to Mr. Willmott, Mr. Cottingham, Mr. Tebbutt, and Mr. Sylvester Sullivan.

Mr. Bucknell made a large view of London, which, considering the short time spent on it, was a really able performance. Mr. Jarrett made a valuable study of the precincts of the Temple, but not being in accordance with the programme, it was reluctantly placed *hors concours*. In spite of the distractions of the Geddes Exhibition there was a creditable show of regular Atelier work at the exhibition and criticism on Wednesday, the 18th inst. A twelve-hour sketch for the entrance to an arsenal brought up a good show of competitors, of whom Mr. Duckett obtained a "Mention." A monthly programme, consisting of a design for the internal courtyard of a three-story building, involving a study of superimposed Orders, resulted in the production of some excellent and well-studied designs, with which the jury were very pleased. "Mentions" were awarded to Mr. McFie and Mr. Percival Ware.



Measured and drawn by Mr. J. S. Curwen.
(Leeds School of Architecture.)

THE LONDON COUNTY COUNCIL.

THE usual weekly meeting of the London County Council was held on Tuesday in the County Hall, Spring-gardens, S.W., Viscount Peel, Chairman, presiding.

Tenders.—The following tenders were received:—For the erection of a school for physically defective children on the Webber-street site (Southwark, W.); for the erection of a housewifery centre on the Mina-road site (Walworth); for the supply of creosoted deal paving blocks for use in the Tramways Department; for the supply of cable drums for use in the Tramways Department; for the construction of an annexe to the Worthington engine-house and other work at the Abbey-mills pumping-station.

Loan.—Sanction was given to the borrowing by the Southwark Borough Council of £7,721 for paving works.

Paving and Lighting Works.—It was agreed, on the recommendation of the Highways Committee, that the paving and electric lighting works required in connection with the provision of accommodation for motor lorries at the Leven-road, Poplar, and Leighton-road, Kentish Town permanent-way depôts be executed by direct employment of labour under the direction of the Highways Committee.

Lavatory Accommodation.—It was agreed on the recommendation of the Highways Committee that tenders should be invited from selected firms for the provision of additional lavatory accommodation at the Clapham car-shed.

Paving of Southcroft-road, Wandsworth.—It was agreed on the recommendation of the General Purposes Committee that, subject to the Wandsworth Metropolitan Borough Council undertaking to pay the reasonable costs involved, authority be sought in the session of Parliament, 1915, to provide that Southcroft-road shall be deemed to be a new street within the meaning of the Metropolis Management Acts, 1855 to 1893, and that the Wandsworth Metropolitan Borough Council shall be empowered to recover a proportion of the cost of paving the said road from the owners of the land abutting on the road or their successors.

THE BUILDING TRADE.

STRIKES AND LOCK-OUTS.

STATISTICAL information about strikes and lock-outs may be deadly dull or replete with human interest. It depends in part upon the way the facts are presented, and in part upon the reader's power of visualising the humanity behind the facts.

As far as method of presenting the facts goes, we have in the Report on Strikes and Lock-Outs, by the Comparative Statistics Department of the Board of Trade, an admirable and lucid presentment, covering the United Kingdom, for the year 1913, and comparisons with previous years are introduced where necessary. We propose to extract from the Report some of the salient facts and make a few comments.

The year 1913 was remarkable for the number of its disputes, which far exceeded the record of any previous year. Practically all the main groups of trades were affected in this way.

The total number of disputes which began in 1913 amounted to 1,497, in addition to which fifty disputes, which arose in the previous year, lasted over into 1913.

Comparing 1913 with the nine previous years, the lowest number of disputes recorded was 355 in 1904. The years 1911 and 1912 showed a marked increase in the number of disputes preparing the way for the culmination in 1913, excluding which the average number of disputes per year in the preceding nine years was 547.

Turning now to the workpeople affected, we find they numbered 688,925, a higher total than in any other year except 1911 and 1912 (when great disputes in the transport trades and coal-mining industry were in progress), and this high figure tends also to show the widespread character of the unrest when it is considered that no single dispute involving more than 50,000 workpeople occurred in 1913.

Considering next the loss in working days involved by these disputes, it appears that their aggregate duration in working days (11,630,732) was only exceeded in 1893, 1898, and 1912. During the whole period for which the Department has comparative statistics and during these three years great disputes in the coal-mining industry were in progress.

If we assume an average wage per diem of 5s., the above figure represents a loss in money of £2,907,683.

It may be observed in passing that the number and magnitude of the disputes in the building trade (198, involving 40,000 workmen) was higher in 1913 than in any of the preceding twenty years of the Department's record; it is interesting to note, moreover, that the average number of disputes in the building trades during the period from 1893 to 1901 was 157, while it was only thirty during the period from 1902 to 1912. It is a significant fact in this connection that the national scheme of conciliation for the building trades came into being in 1904, and has been actively in operation ever since.

As regards the geographical distribution of disputes, it may be noted that just over one-half of the total number of workpeople involved in disputes beginning in 1913 were employed in the northern half of England, about one-ninth in Scotland, and the rest in South Wales and the southern half of England. No wonder builders' associations flourish more vigorously in the North of England than elsewhere—they are evidently needed to cope with the demands of the workers.

Although the figures which have been quoted are large and important enough, some comparison is necessary with the total number of men employed industrially to get them into their proper perspective. For example, the number of workpeople involved in strikes and lock-outs in 1913 was only 5·6 per cent., as compared with 13·4 per cent. in 1912, the highest recorded owing to the national coal strike, when 93·7 per cent. of the coal miners were out, the mean for the ten years, 1904-1913, being only 4·4 per cent.

The bigness of the industrial population of this country is brought home to us when we reflect that disputes, involving only 5·6 per cent. of it, cause nearly 700,000 men to lose about £3,000,000 in wages in one year.

A similar reflection occurs to one when it is realised that, although the aggregate duration of disputes in 1913 was nearly 12,000,000 days, the estimated aggregate number of working days available for the whole industrial population is 3,700 million days per annum, so that the extraordinary loss of time occasioned by disputes in 1913 only represents about one-three-hundredth of the total, equal to a loss of time of about one day per head if spread over the whole industrial population. These two aspects of the same problem, its apparent magnitude and its relative magnitude, according as they bulk largest in the eye of the onlooker, seem to account for the attention these disputes obtain from the public on humanitarian and economic grounds, and, at the same time, for the cool deliberation with which the workmen's organisations enter into, conduct, and conclude labour disputes.

Now as to the leading causes of disputes. As might be expected, the majority of disputes in most years usually arise on demands for advances in wages. In 1913 more than one-half were due to this cause, and they accounted for nearly one-half of the total number of workpeople directly involved.

The above observation is subject, however, to a remarkable exception, viz., that in the coal-mining industry only nineteen small disputes out of a total of 163 arose out of demands for advances of wages, due mainly to the fact that changes in the general wage rate are effected by conciliation boards covering the various coalfields, and, it should be added, under a sliding scale depending upon the selling prices of products. The present Report says the pig iron, iron and steel, and tin plate trades, where similar methods of adjustment prevail, were, *as usual*, but little affected by serious disputes, only twenty-nine strikes and lock-outs occurring in these trades as compared with 392 in the whole group. In a previous article on changes in wages in 1913 it was pointed out that the fluctuations in the coal (and those other industries) were more violent than was customary in the building and other trades, because those changes depended upon selling-price fluctuations, but here we see ith justification as a preventive of strikes and lock-outs.

During the last year or two much has been said and written about labour unrest; this Report shows that it was accountable for a large number of disputes, viz., 133 arising out of the assertion and defence of trade union principle, and 236 arising out of the employment of particular classes or persons. There were twelve purely sympathetic disputes, which involved 15,300 workpeople; this type shows a marked tendency to increase during the past ten years, and is a symptom of solidarity of working-class interests which is likely to become of great significance in the near future.

What was the outcome of it all? The result is not stated in terms of cash, but in terms of successful, partially successful, and unsuccessful, and in 1913 it appears that the approximate proportion of workpeople directly involved where the operatives won their demands was 31 per cent., where they lost 21 per cent., and where they compromised, or partly won, 48 per cent. These figures appear to justify their policy, but they also show that the opposition encountered was so substantial as to result in a compromise in about half the cases, which speaks well for the employers' organisation when we consider that such powerful factors as a marked increase in the cost of living, booming trade returns, and growing revenue from taxation were there to be cited in support of the operatives' demands for better conditions.

As to the methods of settling disputes, the great majority (in 1913 about three-fourths, involving two-thirds of the workpeople directly affected) are settled by direct arrangement or negotiation between the parties or their representatives without intervention of third persons. This is excellent, and shows that much reasonableness and good feeling prevails between employers and operatives. During the year 127 disputes were settled by methods of conciliation and twenty-four by arbitration. It is extraordinary how seldom these disputes go to arbitration—neither side seems to care about it—perhaps it is the active development of this feeling which accounts for the partial failure of industrial arbitration courts in some of our colonies.

As to the humanity behind the figures, as one assimilates them there is borne in a sense of vast numbers, an industrial army, a voluntary industrial army, trained and disciplined by trade union methods, and for the achievement of trades union aims. There is evidently a desire to compel those who do not volunteer lest the aims should not be achieved, just as there is a national tendency just now to demand compulsory military service lest sufficient volunteers for foreign service should not be forthcoming, and our victory should therefore be imperilled.

One sees behind the industrial army a watchful but unobtrusive organisation of leadership, keenly alive to the trade conditions of the country; able to gauge the moment to put forward demands for better conditions; tactful in general in presenting demands; very united and courageous in standing up for them, and prepared to fight in the last resort with coolness, discipline, and unflinching courage, even when the fight means want and suffering to thousands of non-combatants, and when the fight is over bearing no malice to victor or vanquished.

But these qualities are practically the qualities which this British nation is now displaying upon the great stage of European affairs, and their presence in the lesser field of industrial disputes shows how thoroughly they form a fundamental asset of the national character.

BUILDING DEVELOPMENT IN ESSEX.—I.

IN continuing this series of articles on building developments in the Home Counties we may observe that a complete survey has not been undertaken. It is possible that work even of some magnitude has been overlooked, in which case we shall be glad to publish particulars if the architects concerned will communicate with us.

The most obvious contracting work on the Colchester-road is the construction of an asphalt motor-road on a 5-mile stretch of the highway on the London side of Brentwood. Not only on the road itself is there evidence of activity, but in a large field are the great machines used by the firm engaged, namely, Highways Construction, Ltd., Finsbury-court, E.C. This Company has a still larger contract in this county, a 15-mile stretch near Southend-on-Sea.

Near Romford there is the development of the Gidea Park Estate in progress. It will be remembered that Mr. E. Guy Dawber, F.R.I.B.A., Mr. H. V. Lanchester, F.R.I.B.A., and Mr. Mervyn Macartney were the assessors in the competition held a few years ago, the first premium going to Mr. W. Garnett Gibson and Mr. R. Dann, the second to Mr. Geoffry Lucas and Mr. T. A. Lodge. When the full scheme is carried out there will be many alterations in the neighbourhood, and meanwhile there are signs of the changes. Round Gidea Hall are several new roads and many houses, while the number is being gradually increased. The following work is in progress:—Mr. Joseph Seddon, A.R.I.B.A., Buckingham-street, Strand, is the architect for a house being built by Messrs. Dowsing & Davis, Mawney's-road, Romford; Mr. H. G. Turner, Gidea Park, has designed houses in course of erection by Mr. J. F. Cooke, Hare-street, Gidea Park, and by Messrs. W. Hunnable & Co., South-street, Romford; Mr. Hubert S. East, A.R.I.B.A., South-square, Gray's Inn, is the architect for a house being built by Mr. Percy Paul, High Bridge-street, Waltham Abbey; and other work has been planned by Mr. J. Greaves, 12, Great James-street, Bedford-row, W.C.

Adjacent to Raphael Park a large house is being constructed by Messrs. West & Co., Bull-street, Dagenham.

There is a considerable amount of work in progress or in contemplation under the jurisdiction of the Essex County Council, the architect being Mr. G. Topham Forrest, Duke-street, Chelmsford. Plans are in hand and tenders will be invited soon for a new County Hall at Chelmsford, the approximate cost being £50,000. The Public Health and Housing Committee intend to erect a new sanatorium for 120 beds at Sandon, near Chelmsford, at a cost of upwards of £20,000. The quantities are now being taken off and tenders will be invited soon. The sanatorium at Black Notley is to be remodelled and additions made to the original building. A new police station is to be built at Rochford. Plans are now being prepared by Mr. Topham Forrest for a large secondary school for boys at Leyton, the estimated cost being about £20,000. A new final secondary school is to be built at Barking at a cost of £11,000. Other work is in hand or being planned for schools at Romford, Brentwood, Chelmsford, Chipping Ongar, Lambourne, Purleigh, Messing, Tiptree, Colchester, Coggleshall, Purfleet, Stifford, Thundersley, Earls Colne, West Thurrock, Eastwood, Clavering, Ashingdon, Epping, Shoeburyness, Tilbury, and Waltham Abbey.

About 150 acres of land have been purchased by the Agricultural Committee from Lord Rayleigh; this is situated about 3 miles from Chelmsford, and here will be built a model farm, the scheme for which is in preparation.

Tenders have been invited for the erection of a house for the Senior Assistant Medical Officer and a garage for the Medical Superintendent at the recently-erected County Lunatic Asylum at Severalls, near Colchester, and there is a good deal of work yet to be done in connection with the institution, chiefly of an engineering nature. The Asylums Committee intend to proceed with a water supply scheme, consisting of an artesian bored well, with the necessary compressors and pumping plant and a 100,000-gallon water tank.

Plans are being prepared for a new house for the Assistant Medical Officer at the Brentwood Asylum.

It is interesting to note that immediately after the outbreak of the war Mr. Topham Forrest inaugurated a system on behalf of the Essex County Council by which contractors are paid every fortnight for current contracts. This meant an expenditure of £9,000 or £10,000 a month, but it had the effect of keeping prices normal owing to the absence of credit. This system has now been adopted elsewhere.

(To be continued.)

THE MINING AND EXTRACTION OF ZINC.

In our issue of October 9 we published a letter from a correspondent asking for information as to the exploiting of zinc ore, and are now able to give an account of this subject, which should at the present time be of considerable interest to a number of our readers.

Zinc occurs in combination with several other elements forming a variety of ores, but by far the most important are blende, which is sulphide of zinc, Zn S, and calamine, carbonate of zinc, Zn CO_3. The latter is a very valuable and readily dealt with mineral, but its presence in this country is so limited that discussion may be confined to the former, a crystallised hard black material, occasionally found in translucent orange or even yellow masses where it has not been exposed to light. Lead and zinc are usually found in association, and zinc mines are generally also more or less lead mines, though the converse is less true. The ore is found in veins which are generally nearly vertical and may be a few inches to many feet in width. The illustration shows such a vein partially worked out, though it is seldom that surface exposures like this occur in Britain, most of the mining being at some depth. The usual associates of the ore are quartz and limestone, from which it must be separated when brought to the surface. This is effected by a series of processes. First, the lumps, which may be a cubic foot or more in size, are tipped into a crusher, which is a giant pair of nut-crackers worked mechanically and the fragments, still about the size of a man's fist, drop upon a moving table, by which stand a row of boys, who pick out the most obvious pieces of useless rock as the material passes along in front of them. The residue is then further reduced to about the size of peas, when it is placed in "jiggers." These are shallow wooden boxes, which have a false bottom kept in slight vertical motion by attached levers working on eccentrics on an engine-driven shaft. The crushed ore is placed in the boxes and a stream of water allowed to flow over the whole, when the movement brings the lighter limestone and quartz fragments to the top, the velocity of the water being so regulated as to carry them away, leaving a mixture of lead and zinc ore behind.

Lead is a good deal heavier than zinc, so that after the concentration referred to the same method of separating the zinc is effected by utilising the principle of a centrifugal laundry drier, the ore and water being subjected to a circular motion, which tends to collect the lead in the centre and useless particles at the periphery, the zinc occupying an intermediate position. The mineral now leaves the mine and is sent to the smelter.

Zinc Smelting.

The first process in smelting consists in the roasting of the ore in order to convert the sulphide into oxide. This requires careful regulation and admission of a suitable amount of air to avoid the formation of other compounds. The roasted ore, now a white powdery substance, is then mixed with fine coal and heated in long fireclay cylinders (retorts) placed in batches in a furnace like the water-tubes of a boiler. An intensely high temperature is necessary to effect the extraction of the metal, and at a white heat the zinc is given off in the form of vapour, which distils and is condensed again to a liquid form in special nozzles attached to the mouths of the retorts, whence it is run off into moulds. In this form it comes into commerce under the name of "spelter." The metal cadmium is generally found in small quantity with zinc and, owing to its lower vaporising point, is given off first. The first products from the retorts are therefore often separated in order to secure this metal (which is used in dentistry) and to give a purer spelter. The rough blocks or ingots are not usually further treated at the smelting works, but pass into the hands of zinc sheet-makers.

Though brittle at ordinary temperatures, zinc has the curious property of becoming pliable when made a little hotter than boiling water, but at a still higher temperature it again becomes brittle.

The purity of zinc has considerable bearing upon its life and pliability. The metal is readily dissolved in acids, and, if impure, this solution, which is always slowly proceeding in the moist acid atmosphere of many of our cities, is much accelerated. Hence the economy of using good material, which may perhaps be regarded as having a thirty years' life in London.

Zinc was first smelted in this country as early as 1743, although the earliest Continental works, those of Liége, date only from 1807. Most of our zinc is obtained from ores imported in about equal amounts from Australia and Italy and in much smaller quantity from Germany, only about 6,000 tons of spelter coming from the ores mined at home, namely, North Wales, Cumberland, and the Isle of Man. There are seventeen smelting works in this country; in the latest returns the following names appear:—

Cheshire: Messrs. Brunner, Mond, & Co.

Cumberland: The Workington Iron and Steel Company.

Durham: The Central Zinc Company.

Glamorgan: The British Metals Extraction Company; Messrs. Dillwyn & Co.; Messrs. Down & Co.; the English Crown Spelter Company; Messrs. Williams, Foster, & Co.; the Swansea Vale Spelter Company; Messrs. Vivian & Sons.

Lancashire: The United Alkali Company.

Somerset: Messrs. Lysaght & Co.

Staffordshire: Messrs. Ash & Lacey; the New Delaville Spelter Company.

Worcestershire: Messrs. Stewarts & Lloyds.

Ayrshire: The Brands Pure Spelter Company.

Lanarkshire: The Central Metal and Smelting Company.

From the above list it will be seen that seven firms (with Swansea as the centre) are situated in Glamorganshire, two in Scotland, and the remainder in the north and west of England. The mean price of spelter in 1912 was £26 3s. 4d. per ton.

"Mining and Extraction of Zinc."

CAPTURING ENEMY PATENTS.

THE following is a list of British patents which have been granted in favour of residents of Germany, Austria, or Hungary, specially compiled for the *Builder* by Mr. Lewis William Goold, chartered patent agent, 5, Corporation-street, Birmingham. It is furnished in view of the new Patents Act, which empowers the Board of Trade to confer upon British subjects the right to manufacture under enemy patents:—

5,417 of 1911.—A. Schwieger, Germany: Locks and latches.

6,250 of 1911.—O. Arndt, Germany: Moulding floors and ceilings.

6,276 of 1911.—F. Ruppel, Germany: Flushing cisterns.

7,100 of 1911.—W. Breil, Germany. Dated March 23, 1910: Ferro-concrete lining for shafts.

7,149 of 1911.—I. Wieder and R. Pesl, Vienna; Window-guards for casements, which are automatically moved into operative position when the casement is opened.

7,158 of 1911.—H. Tessenow, Germany: Walls, half-timbered brick walls.

7,304 of 1911.—C. Wiegand, Germany: Dust-shoots.

7,329 of 1911.—L. Eck and H. Klahn, Germany: Graining wood to imitate veneering.

7,434 of 1911.—M. Nikolaus, Vienna. Dated April 2, 1910: Windows, having sliding sashes in the same plane when closed.

7,487 of 1911.—M. Mannesmann, Germany: Building blocks of concrete.

7,488 of 1911.—M. Mannesmann, Germany: Concrete buildings.

7,489 of 1911.—M. Mannesmann, Germany: Stairs, concrete.

7,490 of 1911.—M. Mannesmann, Germany: Concrete buildings.

NEW OPENINGS FOR FIRECLAY GOODS (OTHER THAN SANITARY WARE).

THE total exports of fireclay goods from Germany in 1912 were valued at £643,700, and from Austria-Hungary at £248,300. Of these goods by far the largest proportion consisted of fireproof bricks such as Dinas, bauxite, and magnesite bricks used for refractory furnace or flue linings, which accounted for £584,100 from Germany and £223,800 from Austria, the residue being chiefly comprised of retorts, slabs, tubes, crucibles, and the like. Figures for the United Kingdom on this basis are not available, but the distribution in various markets of the bulk of the German and Austrian trade is shown in the following Board of Trade tables :—

PRINCIPAL GERMAN MARKETS.

The following statement shows for the year 1912 the value of fireproof bricks, retorts, crucibles, etc., exported from Germany to the United Kingdom and the principal neutral and colonial markets :—

Country to which Exported.	Fireproof Bricks, rectangular, each weighing less than 5 kilogs.	Fireproof Bricks, rectangular, each weighing 5 kilogs. or more; also Bricks other than rectangular, without regard to weight.	Other fireproof products of Clay.	
			Retorts.	Crucibles, Muffles, Capsules, Tubes, Cylinders, etc.
	£	£	£	£
United Kingdom	4,500	4,400	2,700	2,200
British India	100	—	—	—
Australia	100	50	50	300
Norway	1,500	1,100	50	100
Sweden	3,000	4,400	350	450
Denmark	6,600	5,700	3,500	100
Netherlands	18,000	14,600	6,000	1,300
Belgium	36,000	43,100	1,700	3,600
France	66,800	61,900	350	6,600
Switzerland	16,000	8,600	2,400	1,000
Portugal	800	600	1,300	200
Spain	8,000	3,200	100	750
Italy	33,000	15,000	700	3,300
Servia	100	200	—	500
Roumania	2,800	2,300	350	50
Russia	84,400	65,800	3,900	2,000
Turkey	1,200	300	—	50
China	1,000	100	—	100
Japan	1,300	1,100	1,300	—
Dutch East Indies	2,200	500	350	—
Brazil	2,300	1,500	500	250
Argentina	1,500	850	—	300
United States	250	750	—	3,300
Total to above markets ...	291,450	236,050	25,000	27,050
Total to all markets ...	322,900	261,300	26,500	33,100

From the above it will be seen that Germany's most important customers were Russia (£156,100), France (£135,650), Belgium (£84,400), Italy (£52,000), while Britain took £13,800 worth of goods. In the case of Austria, Russia is again her largest customer (£42,710), France next (£23,850), while Italy and Britain take about equal quantities (£16,000-£17,000).

Differences in classification render the comparison of home and foreign export trade impracticable, but the Board of Trade estimates that the amount of Germany's trade, which might be secured abroad by our manufacturers is as follows :—Rectangular fireproof bricks weighing less than 11 lb., £286,950; fireproof bricks weighing more than 11 lb. of all shapes, £231,650; other goods—retorts, tubes, crucibles, etc.—£47,750. The total for Austrian trade available is stated as £117,000. In addition small home orders to replace these foreign goods are waiting to be secured, amounting to about £10,000 for bricks of all kinds imported into Britain from Germany, and over £16,000 worth from Austria, in addition to nearly £5,000 of other German goods of the nature cited above.

We may now turn to a few details of the imports and requirements of specific countries :—

Canada.—The imports of bath and firebricks, drain and sewer pipes, and mosaic flooring amount to £1,000,000 annually, of which only £120,000 is supplied by Britain, and H.M. Trade Commissioner, writing from 3, Beaver Hall-square, Montreal, says that many inquiries have been received from Canadian firms as to British firms who would do business with them. He adds that in such negotiations the usual commercial agent will be of little value, as these imports are outside the ordinary wholesale and retail trading channels.

Australia.—The value of imports of fireclay goods, fibro cement, and asphalt tiles into Australia was nearly doubled between 1909 and 1911, amounting in the last-named year to £17,635, during which period British imports steadily declined, while those from Germany increased from £4,302 to £8,092 in a single year, this country's trade being almost wholly with Victoria. Nearly the whole of these imports appear to consist of firebrick and glazed bricks.

Russia.—The value of firebricks and similar goods imported into Petrograd in 1911 was £157,797, Germany leading with 81,000 tons as against Britain's 28,000 tons. There are no firebrick kilns in Finland, and here a good field for enterprise exists, as the German imports are large. The lack of trade done by Scotch firms appears to be the result of higher prices charged.

In the Caucasus British interests appear to be better established, but attempts by Germany to imitate the shapes and markings of Scotch firebricks have been referred to this year by the Consul at Batoum, which should put manufacturers on their guard. The Consular reports from Marinpol, both in 1911 and 1912, show that local orders far exceeded the available firebrick supply, and Germany secured most of the orders which necessarily went abroad. In the former year the imports of firebrick exceeded 12,000 tons, whereas in 1910 they were less than 2,000 tons, and British manufacturers only secured 2 per cent. of these orders.

At Odessa most of the imports are still from Glasgow, though the local production is rapidly increasing. Traders should keep themselves well informed as to the condition of local demands, which may increase greatly in special circumstances, when, for example, it is necessary to rebuild local kilns, which can seldom afford to hold a large reserve for such a purpose many hundreds of tons of firebricks may be ordered from a single company.

Holland.—Imports are chiefly from Germany and Britain, but Scottish silica bricks are stated to be too costly for the Rotterdam market.

Spain.—In Spain Britain enjoys the largest share of a trade which amounts to £52,000, but Germany possesses a fair proportion. Imports in this field show an increase.

Japan.—The imports, valued at £19,000, come chiefly from Germany and Britain, Austria sending about £1,000 worth. The duty payable appears to require consideration, firebricks shipped in connection with boilers being charged with the higher duty on boilers. Separate shipping in such cases is, therefore, an economy.

PRINCIPAL AUSTRIAN MARKETS.

The following statement shows for the year 1913 the value of fireproof bricks, retorts, crucibles, etc., exported from Austria-Hungary to the United Kingdom and the principal neutral and colonial markets :—

Country to which Exported.	Fireproof Bricks: Dinas, Magnesite, Bauxite and Graphite Bricks		Fireproof Bricks: other sorts		Retorts, Crucibles, Muffles, Capsules, Nozzles, Brewers' Stirring-rods and similar articles for technical purposes.
	weighing up to 5 kilogs. each.	weighing over 5 kilogs. each.	weighing up to 10 kilogs. each.	weighing over 10 kilogs. each.	
	£	£	£	£	£
United Kingdom	15,400	1,100	—	—	20
British India	2,300	400	—	—	—
Australia	950	—	—	—	—
Sweden	1,600	2,900	—	300	—
Denmark	—	—	—	—	—
Netherlands	600	750	400	1,300	—
Belgium	2,600	4,800	—	—	30
France	9,900	13,700	150	100	—
Switzerland	1,000	300	250	50	40
Spain	1,500	600	—	50	—
Italy	14,800	1,400	800	50	—
Bulgaria	—	—	1,750	—	20
Servia	—	—	2,000	—	60
Roumania	450	—	900	200	60
Russia	27,100	9,900	4,300	1,400	30
Turkey	800	—	—	—	—
China	850	—	—	—	—
Japan	1,500	100	—	—	—
Dutch East Indies	—	—	100	50	—
Brazil	—	—	330	50	—
Argentina	100	—	50	—	—
United States	700	—	50	—	—
Total to above markets ...	82,750	35,950	11,100	3,550	240
Total to all markets ...	119,000	74,500	15,900	7,000	1,700

WAGES IN THE BUILDING TRADE.

Cardiff.—Six months' notice has been given by the following trades in this district for an advance in wages of 1½d. per hour:—Painters, plumbers, bricklayers, electrical trades, masons, plasterers, carpenters and joiners, labourers, and haulers. The present rate for masons, bricklayers, plasterers, plumbers, and carpenters and joiners is 9½d. per hour, painters 8½d. per hour, and labourers, 7d. per hour. The notices expire on May 1, 1915.

PROPOSED NEW BUILDINGS AND OTHER WORKS.*

IN these lists care is taken to ensure the accuracy of the information given, but it may occasionally happen that, owing to building owners taking the responsibility of commencing work before plans are finally approved by the local authorities, "proposed" works, at the time of publication, have been actually commenced. Abbreviations:—T.C. for Town Council; U.D.C. for Urban District Council; R.D.C. for Rural District Council; E.C. for Education Committee; L.G.B. for Local Government Board; B.G. for Board of Guardians; L.C.C. for London County Council; B.C. for Borough Council; and P.C. for Parish Council.

AYR.—The Dean of Guild Court have passed plans for the erection by the Kilmarnock Equitable Co-operative Society of shops and dwelling-houses in George-street and King-street, at an estimated cost of £4,900; and a house by Mr. Robert Boyd in Victoria-street.

Atherstone.—The R.D.C. have applied to the L.G.B. for sanction to a loan of £18,158 for the Warton water scheme.

Barnes.—Plans passed by U.D.C.:—Two houses in Sheen-lane, Messrs. James & Lane; sixteen flats, Riverview-gardens, Messrs. Peppiatt & Cooper; two houses, Fife-road, Mr. James F. C. Bell; three houses, Temple Sheen-road, Messrs. Cox & Taylor; conversion of house and workshop at No. 5, Railway-side, Barnes, into four flats, by Mr. R. Gibson; workshops, etc., Aynescombe-lane and Ship-lane, Messrs. Watney, Combe, Reid, & Co., Ltd.

Blackburn.—Plans for two cottages in Moorfield-avenue, Ramsgreave-road, for Mr. Gregson, have been passed by the R.D.C.

* See also our list of Competitions, Contracts, etc., on page 520.

RATES OF WAGES IN THE BUILDING TRADE.

THE following are the present rates of wages in the Building Trade in the principal towns of England and Wales. It must be understood that, while every endeavour is made to ensure accuracy, we cannot be responsible for errors that *may* occur:—

—	Masons.	Bricklayers.	Carpenters, Joiners.	Plasterers.	Slaters.	Plumbers.	Painters.	Masons' Labourers.	Bricklayers' Labourers.	Plasterers' Labourers.
	d.	d.	d.	d.	d.	d.	d.	d.	d.	d.
Aberdare	9	—	9	9	—	9	8	6½	6½	6½
Accrington	10	9½	9	9½	9	9	8½	6½	6½	6½
Altrincham	10½	10	10½	10	8½	10	9	6½	6½	6½
Ashton-under-Lyne	10½	10½	10	10½	9	10	9	6	6	7
Barnsley	9½	9½	9½	9½	9	9	8	7	7	7
Barrow-in-Furness	9½	10	9½	9½	9½	9½	9½	7	7	7
Barry	9½	9½	9½	10	—	9	8½	6	6	6
Bath	8½	8½	8½	8	7½	7½	7½	5½	5½	5½
Bedford	8	8	8	8½	8	9	6½	5	5	5½
Birkenhead	11	11	11	11½	11	11	9½	7	7	7
Birmingham	10½	10½	10½	10½	9	10½	9	7½	7½	7½
Bishop Auckland	9	9	9	9	10	9	7½	6	6	6½
Blackburn	10	10½	10	9½	9½	9½	9½	6½	7	7
Blackpool	10½	9½	9½	9½	8½	9	8½	6	6	6
Bolton	10	10½	10	10½	9½	10	9½	6-7	6-7	6-7
Bournemouth	8½	8½	8½	8½	8½	8½	8	6	6	6
Bradford	10	10	9	9½	9½	10	8½	7	7	7
Bridgwater	6½	6½	6½	6½	6½	6½	6	4	4	4
Brighton	8-9	8½	8½	8½	—	—	7	6	6	6
Bristol	10	10	10	10	—	10	9½	7	7	7
Burnley	10	9½	9½	9½	8	9	9½	7	7	7
Burton-on-Trent	9	9	9	9	8½	9	8½	6½	6½	6½
Bury	10½	10½	10	9	9½	10	9	6	6	6
Cambridge	9	8½	8½	9	9	9	7	5½	5½	5½
Canterbury	8½	8	8	10	—	8½-9	6½	5	5	5
Cardiff	9½	9½	9½	9½	9½	9½	8½	7	7	7
Chatham	8	9	9	9	9	9	7	6	6	6
Chelmsford	8	7½	8	9	—	7½	6½	5	5	5½
Cheltenham	8½	8½	8½	8½	—	8½	8	6	6	6
Chester	9½	10	9½	9½	9½	9½	8½	5½	6½-6½	5-5½
Chesterfield	8½	9	8	8	9	8½	7½	5½	5½	5½
Colchester	8	8½	8½	9	8	9	8½	5½	5½	5½
Coventry	9½	9½	9½	9½	9½	9½	8½	6½	6½	7
Crewe	7	8	7½	9	8	7½-8	7½	5	5½	6
Darlington	9½	9½	9	9½	10	9	8½	6½	6½	6½
Derby	9½	9½	9	9	9	9	8	6½	6½	7
Doncaster	9½	9½	9	9	9	9	8	6½	6½	7
Dudley	8½	8½	8½	8½	8½	8	7½	5½	5½	5½
Durham	9	9	9	9	9½	9	8	6	6	6½
East Glamorgan and Monmouthshire Valleys	9	9	9	9	—	—	8	6½	6½	6½
Exeter	8	8½	8	8	7½	7½	7	5½	5½	5½
Folkestone	8½	8½	8½	9	8½	8½	7-7½	6½	6½	6½
Gloucester	8	8½	8½	8	8	8½	8	6	6	6
Grantham	8	8	7½	7½-8	7½-8	7	6½	5	5	5
Grays	—	10	10	—	—	9½	8½	7	7	7
Grimsby	9	9	9	9	9	9	8½	6½	5	—
Great Yarmouth	8	8	8	—	8	9	8½	6½	6½	6½
Halifax	9½	9½	9	8½	8½	9	8½	6½	6½	6½
Harrogate	9½	9½	9	9	8	9	8½	6½	6½	7½
Hartlepools	9	10	9½	10	10	10	9	7	7	7½
Hastings	8½	8	8	8½	8	8	7	6½	5½	5½-6
Hereford	8	8	7½	8½	8	7	6½	5½	5½	5½
Huddersfield	9½	9½	9	9	10	9	8½	6½	6½	6½
Hull	10½	10	10	10	10	9½	8½	7	7½	7½
Ipswich	8½	8½	8½	9	8½	8½	7	5½	5½	5½
Lancaster	10	10	9	9	9	9	9	6	6	6
Leamington Spa	9	9	9	8½	8½	8½	7½	6	6	7
Leeds	10	10	10	10	9	9½	8	7	7	7
Leicester	9½	9½	10	10½	9½	9½	9	6½	6½	7½
Lincoln	9	8½	8½	9	8	8½	8	6	5½	6
Liverpool	11	11	11	11	10½	11	9½	7	7	7
Llanelly	9½	9½	8½	8½	9	8½	8	5½	5½	5½
London	11½	11½	11½	11½	—	1s.	9	8	8	8
Loughborough	9	8½	8½	9	9	8½	7½	5½	5½	5½
Luton	9½	8½	8½	8½	9	8½	7½	5½	5½	5½
Maidstone	9	9	9	9	10	9	8	6	6	6
Manchester	10	10½	10½	11	10	10	9½	6½	6½	7½
Mansfield	8½	9	8½	8½	—	8½	8	6	6	—
Merthyr Tydfil	9½	9½	9½	9½	8½	8	8½	6½	6½	6½
Middlesbrough	9	10	9½	10	10	10	8½	7	7	7½
Newcastle-on-Tyne	10	10	10	10	10	10	9	6½	6½	6½
Newport, Mon.	9½	9½	9½	9½	8½	9½	8½	6½	6½	6½
Northampton	9	9	9	9	8½	9	8	6	6	6
Norwich	8	8½	8½	8½	8	8½	7	5½	5½	5½
Nottingham	10	10	10	10½	9½	10	9	7½	7½	8
Oldham	10½	10½	10½	10	9	10	9½	7	7	7½
Oxford	9	8½	8½	8½	8	8½	7½	6	6	6
Plymouth	9	9	9	9	9	9	7½	6	6	6
Pontypridd	9	9	9	9	9	9	8	6½	6½	6½
Portsmouth	9½	9½	9½	9½	—	8½	7½	7	7	7
Preston	10½	10½	10	9½	9½	10	9½	5½	6	6½
Reading	8½	9	9	9½	—	9	7½	6	6	6
Rochdale	10	10½	10	9½	8½	9½	9	6½	6½	7
Rochester	8	9	9	9	9	8½	8	6	6	6
Rugby	8½	8½	8½	8½	8	9½	8½	5½	5½	5½
St. Albans	9	9	9	9-10	9	9-10	8	6½	6	6½
St. Helens	9	9½	10	9½	9½	9½	9½	6	6	6
Scarborough	8½	9	8½	9½	8	8	7½	6½	6½	6½
Sheffield	10½	9½	9½	9½	9½	9½	8½	6½	6½	6½
Shrewsbury	8½	8½	8½	9½	—	8½	7	5½	5½	6½
Southampton	8½	9½	9½	8	—	9½	8½	6½	6½	6
Southend-on-Sea	9	9	9	9	P'cework	9	7	6	6	6
Southport	10	10	9½	9½	9½	9½	9½	6½	6½	6½
South Shields	10	10	10	10	10	8½	9	6½	6½-7	7½
Stockport	10½	10	10	10½	9	10	8½	6	7	7½
Stockton-on-Tees	9	10	9½	10	10	10	9	7	6	—
Stoke-on-Trent	9	9½	9	9	—	8½	8½	6	6	6
Strood	7½	7½	7½	7½	7½	7½	7	5	5	5
Sunderland	10	10	10	10	10	9	9	6½	6½	7
Swansea	9½	9½	9½	9½	8½	9	9	6½	6½	6½
Taunton	7	7	7	7	—	6	6½	4½	4½	4½
Wakefield	9½	9½	8½	9½	8½	8½	8	7	7	7
Walsall	9	8½	9	8½	8½	8½	7½	6½	8½	6½
Warrington	8½	9½	9½	10	8½	9½	8½	5½-6	6	6-6½
West Bromwich	9½	9½	9½	9½	—	9	7½	6½	6½	6½
Wigan	10	10½	9½	9½	9	9½	9½	7	7	7
Windsor	9	9	9	10	—	9	—	6	6	6
Wolverhampton	9½	9½	9½	10	8	10	8	6½	6½	6½
Worcester	8½	9	9	8½	8½	8½	7½	6	6	6
York	9½	9½	9	9½	9½	8½	8	6½	6½	6½

The mason's rate given is for bankers; fixers usually ½d. per hour extra.

Bognor.—The U.D.C. have decided to apply to the L.G.B. for sanction to borrow £10,000 for the erection of houses.

Bristol.—Approval has been given to the plans for a vestry for St. Matthias-on-the-Weir, to be erected at the junction of Victoria-road and Stratton-street by Messrs. W. Cowlin & Sons.

Cambridge.—The B.G. have decided to have plans prepared for the reconstruction of the Workhouse.

Derby.—The T.C. have decided to sell 10 acres of land on the Osmaston Park-road to a syndicate, who propose providing a small garden city.

Dudley.—Plans for a new out-patient department and eye infirmary have been accepted by the Committee of the Dudley Guest Hospital.

Dundee.—The School Board have accepted the design of Messrs. Maclaren, Sons, & Soutar, architects, for the proposed new school in Bellfield-street. The surveyor estimates the cost according to this firm's plans at £19,792.

Durham.—The B.G. have generally approved of the draft plans for the reconstruction of the laundry at the Workhouse, prepared by Mr. Milburn, architect.

East Preston.—A L.G.B. inquiry has been held into the application of the R.D.C. for sanction to borrow £800 to erect four cottages on land given by the Duke of Norfolk.

Elham.—The R.D.C. have passed plans for a cottage, for Mr. H. Amos, at Stanford.

Exeter.—The L.G.B. has sanctioned loans of £1,100 for the purchase of land and £3,000 for the street improvements contemplated in Haven-road and Water-lane.

Fleetwood.—The U.D.C. is contemplating a development of the foreshore by carrying out seawards an outer circle promenade, reclaiming a large area of the sandy shore which at present is only reached by the sea in rare times of storm and high tides. A plan prepared by the Surveyor to the Council shows the utilisation of the space for laying bowling greens, tennis courts, croquet lawns, a large recreation ground for children, and a huge open-air swimming bath. The scheme presents no serious engineering difficulties, and the Surveyor estimates that £10,000 will cover the entire cost of the development.

Folesahill.—Plans passed by R.D.C.:—Two houses at Grange-road, Longford, for Mr. Goode; drainage at Collycroft, Bedworth, for Mr. J. Morris.

Horsham.—The West Sussex E.C. has approved of plans for proposed new high school, and they are to be forwarded to the Board of Education.

Lowestoft.—To meet the wishes of Messrs. Maconochie, of Millwall, who propose erecting a factory, to cost between £30,000 and £40,000, the T.C. have decided to make up a new road, at a cost of £940, and to pile the Waveney embankment, at a cost of £1,280.

Ludlow.—A L.G.B. inquiry has been held into the application of the T.C. to borrow £4,000 for a housing scheme. Mr. J. Butters, architect.

Maesbury.—The Shropshire C.C. have purchased a site for a new Council school.

Mirfield.—A L.G.B. inquiry has been held with respect to an application by the U.D.C. for sanction to borrow £2,310 for purposes of street improvement in Flash-lane, Northorpe-lane, Slipper-lane, and Taylor Hall-lane; £114 for the provision of a depôt at Old Bank-road; £443 for extensions to depôts in St. Paul's-road; and £387 for extensions to the public offices at Fold Head.

Paignton.—The application of the U.D.C. to borrow £975 for sewerage works has been the subject for a L.G.B. inquiry.

Preston.—The T.C. propose applying to the L.G.B. for sanction to borrow £12,700 for the repaving of certain streets, the works to be carried out only in the event of distress becoming acute owing to the war.

Reigate.—Plans passed by R.D.C.:—Stables near Nutfield Station, Mr. A. Howick, sen., Nutfield; house, Nursery-road, Walton-on-the-hill, Mr. Arthur Hutton, Gloucester-terrace, London, W.

Richmond.—Plans passed by T.C.:—Messrs. Boore & Parker, house and motor-house, High Park-road.

Rishton.—The Lancashire C.C. propose providing a new elementary school for 500 children.

Rugby.—Plans passed by R.D.C.:—Engine-house at Harborough Magna Hospital, for the Rugby Joint Hospital Board; house in Houston and Boughton-road, Brownsover, for Mr. R. J. Jewell; six houses in Houston-road, Brownsover, for Mr. R. Hawksley; two houses, Hillmorton Paddox Estate, for Mr. H. F. Dunn; cottage at Frankton, for Mr. Forbes; house at Overslade, for Mr. Lenton.

Rushden.—Plans passed by U.D.C.:—Corton Boot Company engine-house to factory in Rectory-road; Mr. W. G. Wilmott, sanitary convenience to factory in East-grove; Messrs. Eaton & Co., factory at the corner of Irchester-road and Sartoris-road; Mr. C. W. Horrell, for box-shed at factory in Fitzwilliam-street; and Mr. John Clark, for fifteen houses, viz., three in Duck-street, six in a proposed private street off Carnegie-street, and six in Carnegie-street.

Stockton.—The B.G. has received the sanction of the L.G.B. to the borrowing of £1,750 for the purchase of the site in Junction-lane, Norton, on which the new Workhouse Infirmary is to be built.

Swindon.—The R.D.C. have approved an estimate of £3,237 2s. 8d. for the making of new roads from the Patriots' Arms Inn, Chiseledon, to Draycott and along the Ridgeway.

Whitby.—Plans passed by the R.D.C.:—Cottage at Lealholm, for Mr. A. T. Bell; alterations to house at Aislaby, for Mr. F. Pyman; and reconstruction of the sewer at Thorpe, by the Council's Inspector.

Yeovil.—A L.G.B. inquiry has been held into the application of the Yeovil R.D.C. to borrow £900 for the purpose of carrying out a scheme for the provision of houses for the working classes. Messrs. Petter & Warren, architects.

GENERAL BUILDING NEWS.

CHURCH TOWER, PURLEIGH.

The tower of Purleigh Parish Church has just been reopened after restoration. The work, which has cost about £700, was carried out by Messrs. Thompson, of Peterborough, Mr. P. M. Beaumont, of Maldon, being the architect. During the course of the work pieces of Norman brick and stone have been discovered, the age of the former being estimated at 800 years.

CHURCH, WOKING.

A beginning will shortly be made with the Church of St. John, Woking, Surrey, the design for which was shown at the Royal Academy in 1913. The architects are Messrs. Tubbs, Messer, & Poulter, Craig's Court House, Whitehall, S.W., and the contract has been let to Messrs. Norris & Co., Sunningdale.

HODDESDON BAPTIST CHURCH.

The opening ceremony of this building, which forms the first section of a larger scheme, took place on the 12th inst. The building is faced with local red sand-faced bricks, and the dressings are of Bath stone. The contract has been carried out by Messrs. Ekins & Co., of Great Northern Works, Hertford, from the designs of Messrs. George Baines & Son, architects, 5, Clement's-inn, Strand, W.C.

SECONDARY SCHOOL, SLOUGH.

The new wing, which has recently been added to the Slough Secondary School, was opened a few days ago. The additions, which provide accommodation for 250 scholars, consists of two bays to the assembly hall and a new wing on the western side of the school; a botany laboratory, fitted with benches, and a conservatory above for the pursuit of further botanical knowledge. Other quarters include a science storeroom and a library, whilst the cloakrooms have been enlarged. In addition there is a spacious kitchen, which has been fitted up as a cookery centre. The building has been constructed by Messrs. Biggs & Son to the plans of Mr. C. H. Riley, the County Architect, and the work has been carried out under the direction of Mr. M. R. Brady, M.Inst.C.W.A., clerk of the works.

SUB-STATIONS, ELECTRIC RAILWAY.

Two sub-stations in connection with the London Electric Railway Company, Palmer-street, Westminster, are in course of erection on the City and South London Railway at the Elephant and Castle, Southwark, and at Old-street, Shoreditch. The general contractors are Messrs. L. & W. Whitehead, Ltd., Portland Works, Clapham-road, S.W., and the steelwork is by Messrs. Drew-Bear, Perks, & Co., Ltd., Battersea.

FACTORY, CAMBRIDGE-ROAD, N.E.

An additional factory for Dr. Allinson's Food Company is in course of erection in Cambridge-road, Bethnal Green, N.E. The architects are Messrs. Lovegrove & Papworth, Town Hall-chambers, Old-street, E.C.; the general contractors are Messrs. J. Jarvis & Sons, Ltd., Hackney-road, N.E.; and the steelwork is by the Aston Construction Company, Eagle Wharf-road, Hoxton, N.

TRADE NEWS.

Our attention has been called to the "Mars" gas-heated steam radiators of Messrs. Arden, Hill, & Co., M4, Acme Works, Birmingham, for which is claimed the advantage of economy, as they give the effects of steam heating at a fraction of the cost, and are much cheaper to install. They can be placed in any position to which a gas pipe can be led, and require no boiler, steam-pipes, flues, and do not smell, while each radiator is separate and complete. There is no corrosion from condensation. The radiating surface is greatly in excess of the heating surface, and safety is ensured, as even with gas burning all the time and without an automatic valve only a pressure of a few pounds is created in the radiator. An ordinary gas connection is all that is required, and, when once lit, the gas supply is automatically regulated to maintain any desired temperature. The "Mars" radiator is odourless and practically indestructible. The radiators have been extensively used for public buildings and churches, as well as hotels and factories. The firm issue a descriptive illustrated booklet, entitled "Healthful Heating," which can be obtained on application.

Under the direction of Mr. James Lee, C.E., Burgh Surveyor, Paisley, Boyle's latest patent "air-pump" ventilators have been applied to the new swimming pond, Paisley.

The Wharfedale Isolation Hospital is being supplied with Shorland's warm-air ventilating patent Manchester grates, exhaust roof ventilators, and inlet ventilators, by Messrs. E. H. Shorland & Brother, Ltd., of Failsworth, Manchester.

Clifford Sabey and Kensington Developments, Ltd., Pelham-place, S.W., are converting the Dieudonné Hôtel, Ryder-street, St. James's, for the Eccentric Club, under the direction of the architects, Messrs. William Woodward & Sons. The steelwork is being carried out by Messrs. H. Young & Co., Ltd., Vauxhall-cross, and the electric lighting by Mr. Thomas J. Digby, 32, Shaftesbury-avenue, W.—Clifford Sabey and Kensington Developments, Ltd., Pelham-place, S.W., have recently completed a new garage for Messrs. W. & G. du Cros at Pakenham-street, Gray's Inn-road, for their W. & G. Parcel Express Delivery depôt.

The National Radiator Company, Ltd., 439 and 441, Oxford-street, W., have issued particulars of their Ideal No. 3-G series boilers, and of the various types of headers designed for use in connection with these and the No. 2-G series and 3-F series boilers, which they are distributing to architects and the heating trade. The No. 3-G series boilers are regularly supplied in eight sizes, each for steam and water, ranging in capacity from 2,025 sq. ft. to 3,985 sq. ft. of steam radiation, and from 3,600 sq. ft. to 7,100 sq. ft. of water radiation. These boilers, as well as the No. 2-G series, can be arranged, when desired, for operation with underground flues.

TREASURY PLAN FOR AIDING THE BUILDING TRADE.

MR. LLOYD GEORGE, writing to Mr. Thomas Richardson, M.P., states that the Treasury, in view of the exceptional conditions now prevailing in respect of the rate of interest and the cost of building, will make advances for housing schemes on the following terms:—To local authorities, 10 per cent. of the approved cost by way of free grant, the remaining 90 per cent. as loan with interest at 3½ per cent. per annum, to be repaid by annual instalments within the period usually authorised. To authorised societies the advances will be made up to nine-tenths of the total approved capital expenditure, comprising a free grant of 10 per cent. and a loan of 80 per cent. of the expenditure on a sixty years' lease. The annuity will be at the rate of 5 per cent. The Treasury will only advance money for approved schemes under the Housing (No. 2) Act in cases where unemployment in the building trade consequent on the war is exceptional and is not being provided for in other ways. These terms are subject to alteration from time to time.—*Western Morning News.*

NEW COMPANIES.

THE undermentioned particulars of new companies recently registered are taken from the Daily Register compiled by Messrs. Jordan & Sons, Ltd., Company Registration Agents, Chancery-lane, W.C.:—

M. BLAKEY & COMPANY (BRADFORD), LTD. (138,255). Registered November 9. To acquire business carried on by S. Morris, N. Morris, H. Morris, and E. Ludman (formerly Morris) at New John-street and Godwin-street, Bradford, and at 81, Low-street, Keighley, as M. Blakey & Co., and at 6, Colonnade, Westgate, Bradford, as Willey & Co., and to carry on business of painters, paperhangers, sign-writers, decorators, plumbers, etc. Nominal capital, £2,000 in £1 shares.

BARBER ASPHALT PAVING COMPANY, LTD. (138,249). Registered November 9. To search for, work, and deal in asphalt and other minerals and substances. Nominal capital, £10 in £1 shares.

AZTEC PAVING SYNDICATE, LTD. (138,231), 41, Eastcheap, in the City of London. Registered November 6. To acquire and carry on business of the sole agency and right to deal in the Aztec brand of asphaltic paving materials and the Aztec asphalt and Aztec cement, as supplied and manufactured by the Interocean Oil Company, of 90, West-street, New York. Nominal capital, £6,002 in £1 shares.

S. R. ANTHRACITE COLLIERIES, LTD. (138,265). Registered November 10. Colliery owners, coke manufacturers, dealers in timber, brick and tile makers, ironfounders, engineers, spinners, manufacturers or dealers in cotton. Nominal capital, £60,000 in £1 shares.

BARTLETT, BEDWELL, & JONES, LTD. (138,260), Quay-street, Gloucester. Registered November 12. To acquire and carry on business of cabinet-makers, wood-turners, French polishers, carpenters, and joiners, etc. Nominal capital, £6,000 in 1,250 Preference and 4,750 Ordinary £1 shares.

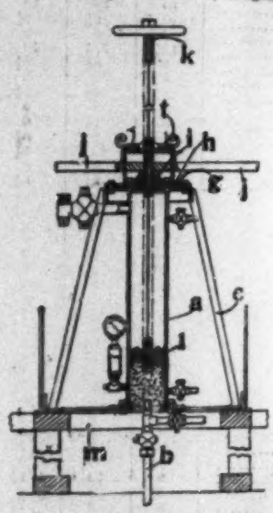
COPPULL BUILDING ESTATES, LTD. (138,298). Registered November 13. To acquire land, buildings, and hereditaments situate in Coppull, Lancs, and elsewhere, and to turn the same to account in particular by preparing building sites and by constructing, reconstructing, altering, improving, decorating, furnishing, and maintaining houses, factories, warehouses, shops, etc. Nominal capital, £2,000 in £1 shares.

CORIQUE, LTD. (138,299), 36-37-38, Southampton-street, Strand, London, W.C. Registered November 13. Producers of oil, naphtha, paraffin, petroleum, petrol, spirit, mineral waters, greases, fats, asphalt, or other mineral products, and refiners of same, hide, tallow, and skin merchants, quarry and mine owners, builders, contractors, steamship owners, carriers by land and sea, estate agents, road constructors, engineers, well borers, tool, implement, and machinery manufacturers, and dealers, warehousemen, and factors. Nominal capital, £50,000 in £1 shares.

SELECTED PATENTS.

15,275 of 1913.—Charles Ferrar: Foundations.

This relates to an apparatus for reinforcing and consolidating insecure substrata by forcing cement grouting thereinto, which comprises a cylinder *a* fitted with a piston *l*, which can be forced down by screw and nut mechanism, the grouting being transmitted through a pipe *b* to the desired place. The cylinder is mounted on a tripod stand *c*, hinged at the

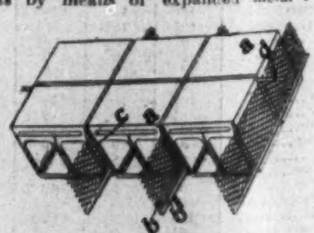


15,275 of 1913.

base to a portable stage *m*. The piston *l* is mounted on a screw *k*, which passes through a nut *i* bolted to a plate *h*. The plate *h* can be rotated manually by radial arms *j*, within a guide *g*, carried on the stand *c*, thus forcing down the piston *l*. The screw *k* can be locked to the nut *i* by means of pawls *t*. Water can be forced into the ground as a preliminary operation, in the same way as the grouting, to clear away mud or loam, and the machine may be provided with boring apparatus.

15,745 of 1913.—George Knowling: Reinforced blockwork floors.

This relates to blocks *a* reinforced at the joints by means of expanded metal *b* and



15,745 of 1913.

recessed at one or both sides *c* to accommodate the reinforcement. The lower edges *b*¹ of the expanded metal are left uncut. Ordinary reinforcing bars *d* may be used in addition. The joints are filled with concrete grouting.

AGENCIES IN CAIRO AND ALEXANDRIA.

We have received a communication from a Cairo and Alexandria firm in which they inform us that they are desirous of taking up agencies for the following articles:—Builders' requisites, safes, steel baling hoops, brass and copper ware, enamelled ware, zinc sheets, and window glass. We shall be glad to hear from any of our readers in reference to the matter.

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Colonnade Court of the Four Seasons.

THE PANAMA-PACIFIC EXHIBITION.

BUILDING a modern world exposition is not a haphazard matter of spending a few months nailing together a rough framework of boards and then plastering them over with mortar and gild. So well has the Panama-Pacific International Exposition been planned, so carefully have its vast exhibit palaces been erected, and so artistically and lavishly have gardens, buildings, and drives already entered into the beauties of the rainbow city that tragedy is foreshadowed.

The hand of man has constructed this city, and the hand of man will destroy it ten months after it has been presented to the world as the gift of modern civilisation in commemorating the completion of the Panama Canal.

When completed it will represent the labour of thousands of workers during the period of twenty-four months and the expenditure of £10,000,000. The visitor who walks in the flowery gardens, between the domed palaces flanked by rows of rare trees, and along the beautiful yacht harbour to-day is not ready to believe that it represents the work of a little more than a year.

Fifteen months ago the 635 acres were rolling sand invaded by the water of the bay, which converted 71 acres of it into salty morass. Great efforts were required to put the ground in shape to receive the buildings, and 1,700,000 cubic yds. of sand and silt were used, costing £60,240 to place them where they were needed.

But it must not be inferred that because the ground was unattractive the builders had no incentive in the beauties of the site. There is a combination of Gibraltar and Constantinople about Harbour View site. The Golden Gate, with its heavy batteries, lies just to the left, and between the gate and the grounds is the Presidio, the ancient Spanish fortress, but now the home of American infantry, cavalry, and artillery.

On the other side the guns of Fort Mason poke their noses into the merging line of land and water, and at the south of the grounds rise the hills on which have been built the new San Francisco. Directly across from what is now the beautiful Esplanade of the Marina are the rugged hills of Marin county, topped by Mount Tamalpais. Between these hills and the grounds are Angel Island, a strongly fortified hill, and Alcatraz, the home of the United States marine prison.

When the first plans were being formulated for the construction of the wonderland that is rising the task was divided into four divisions, of which the Division of Works holds the strongest interest to many of our readers.

The Division of Works has been responsible for all construction, and it has been divided into the following departments:—Construction, architecture, sculpture, colour and decoration, landscape engineering, civil engineering, and electrical and mechanical engineering. The head of each department is a chief, and the Director of Works has charge of all.

There was no difficulty in the solution of the block plan problem as far as the site topography was concerned. It was necessary to divide the area into sections for exhibit palaces, state pavilions, foreign pavilions, amusement concessions, stock exhibit, and athletic field. Relative importance and the area requirements determined that the central portion of the site should be given to the exhibit palaces. Eleven beautiful palaces are nearing completion, and the exhibits that they will house will cover 43 acres.

While these are not under one roof they have the appearance of being so because of five attractive courts which enhance the space between the buildings. The courts are called "The Court of the Universe," "Court of Abundance," "Court of Palms," "Court of

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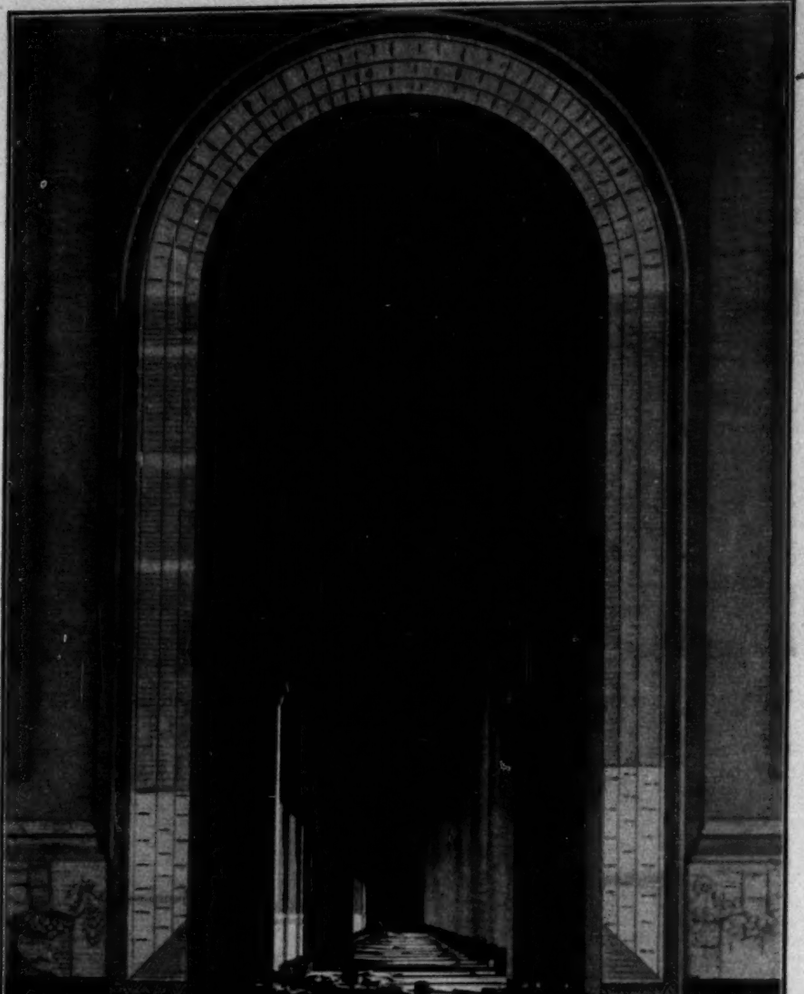
Vestibule: Palace of Machinery.

Travertine plaster colour schemes designed by M. Jules Guerin. Palace designed by Mr. Clarence E. Ward. Figures at base of Columns 9 ft. in height.



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Colonnade Court of the Four Seasons.

Flowers," and "Court of the Seasons." Different ideas have been worked out for each of these courts, and special sculptural and mural decorations have been prepared for each.

The organisers of the 1915 Exposition did not stop at the single idea of commemorating the completion of the canal by a stupendous architectural scheme that, on analysis, had little to recommend it. They went farther, and decreed that the Exposition architecture should foster higher architectural standards and should offer structures that would be able to endure the closest scrutiny with credit.

The ablest men in the artistic professions were assembled for this purpose and to aid in developing a comprehensive plan. The architecture of the Exposition is not in one rigid, inflexible style. On the contrary, there are various types which will destroy the effect of sameness and monotony to the millions of visitors. There is a close relation between adjacent and attached structures.

Where other expositions have engaged an architect to prepare completed plans this Exposition has given the engineers a share in the work. The architects have merely designed the walls and courts, while the buildings within the façade lines have been designed by the engineers.

Architectural features outside the main group are cared for in the usual manner. Mr. George W. Kelham was made Chief of Architecture by the Exposition's Architectural Council, consisting of nine well-known and prominent American architects; eight members of the Council also acted as associate architects, and each has been responsible for the design of some architectural feature required in the scheme.

The total length of the main group of palaces in an east and west direction is 2,756 ft., and the total length in a north and west direction is 1,250 ft. The north and south outside walls of the main group are a liberal treatment of the "Plasteresque," with the east and west walls after the Italian Renaissance.

The exterior appearance of the entire Exposition will be beautiful from the colour and texture standpoint, as the wall surface treatment is a correct replica of the famous Roman Travertine marble found near the River Tiber. It is proving an agreeable substitution for the usual dazzling white plaster effects.

The tone and horizontally stratified treatment will carry through all architectural forms and surfaces, including sculpture. In a few places a note of contrast has been obtained by casting columns in replica of red sienna or Numidian marble, or a verde-antique bronze and gold. Life and interest will be given the vast wall surfaces.

A component part of the decorative scheme is the colouring of all roof surfaces. The streets are also to be of red rock, and when the grounds are viewed from the hills it will give the impression of an enormous mosaic of large units.

Mural paintings will be great factors in enhancing the beauties of the architecture and enriching the courts. Panels are being placed in the back of the colonnades of the Court of the Four Seasons, at the end of the promenades of the Court of Abundance, as well as below the spring line of the arches on the east and west sides of the Court of the Universe and the Main Tower. The Fine Arts Palace is to have mural embellishments in the ceiling of the dome, and the Courts of Palms and Flowers are to have similar embellishments.

The colour schemes for these prodigal decorations will include Pompeian red, Italian blue, yellow ochre, copper green, burnt orange, and like colours. The Chief of Colour has inspected the progress of this work, so that uniformity and coherence has been assured.

Sculpture will be a wonderful aid to the builder's art, and it has been placed under the direction of one man, who has had direct supervision of the army of sculptors who have been at work in the Exposition studios for months. The greater number of groups are enlarged to heroic size, and to narrate the various ideas that have been prepared requires a separate article.

No buildings, whether Governmental or private, have had the aid of the landscape gardener's art, as will the structures that are forming the Panama-Pacific International Exposition. The wizard who made San Francisco's Golden Gate Park from rolling sand dunes is in charge of the flowers and trees for the Exposition.

Every clime has contributed more than a million plants and hundreds of the rarest of tropical trees. Avenues of palms, rows of eucalypti, and groves of cypress, fir, orange, and olive trees will lend their shade to the garden spot along the bay front. Acres of garden will blaze forth their note in the colour scheme each day, and will change their hues every twenty-four hours. No plant will appear on the grounds that will not be in full bloom.

The builders of the Panama-Pacific International Exposition have every science that has been developed as an auxiliary to their art, and it is to be hoped the world is to have the most beautiful exposition in 1915 that time has revealed.

THE CONCRETE INSTITUTE.

THE fifty-first ordinary general meeting of this Institute was held on the 19th inst. at Denison House, Vauxhall Bridge-road, S.W., when the presidential address was delivered by Professor Henry Adams, M.Inst.C.E., M.I.Mech.E., F.S.I., etc.

In the course of his address Professor Adams said :—"The extreme importance of the official "Regulations for the Use of Reinforced Concrete" in London, in the preparation of which this Institute, with other bodies, was consulted, has caused the Council to devote a considerable amount of time and anxious thought to the discussion of the various propositions during the last five years. While they desired to place no difficulty in the way of sufficiently safeguarding the public in the use of this method of construction, they were, on the other hand, in duty bound to their members to see that no unnecessary restrictions were placed upon it. For the first time in history the authorities have suggested an alteration in the laws of mechanics in order to provide against bad workmanship, and I cannot help thinking that this is a mistaken method of securing safety, and in any case the formulæ should have been relegated to an appendix. What would be thought if, in the steel-frame building regulations, incorrect bending moment formulæ were given, by which the girders were to be calculated to compensate for insufficient riveting to resist shear? In that document results only are stipulated for, the stresses being assumed to be calculated by the ordinary laws of mechanics.

In M. Béhar's paper on "The True Bending Moments of Beams with Various Degrees of Fixity," the matter was summed up as follows :—"It appears obvious to me that an engineer or architect who may be called upon to apply regulations concerning reinforced concrete should have sufficient knowledge of the laws of mechanics to be able to deal with the various problems which he may have to study; and to oblige him to follow certain formulæ would practically imply that he is incapable of exercising proper control of any scheme or problem in reinforced concrete which he may have to consider."

You are probably well aware that the actual distribution of stress in a complete structure can only be approximately estimated, and that reliable data for constructional work can only be slowly gathered by extended experiments and minute measurements of the induced strains, which take both time and money; but until we have more precise knowledge I maintain that if we adopt the accepted laws of mechanics we shall not go far astray. I must not say any more about these regulations at present, as they are still *sub judice*, but I do hope that when

they appear they will be in a form to command respect as well as compliance. I would, however, just add that in the last proof that has been received, out of eighty-seven suggestions made by this Institute, sixty-five have been adopted, and there is some ground for hoping that the final revision will include a good proportion of the outstanding balance; at any rate, we are assured that facilities will be given for revision from time to time after the regulations have been tested in practice.

If the Concrete Institute has emphasised one thing more than another in connection with the materials the members are interested in it is the necessity for the best possible workmanship and the utmost care in supervision. The majority of the failures that have occurred have been due to improper materials or careless workmanship. Part of the secret of good work is good pay for it. Where labour is cheap the output is poor, both in quality and quantity. We have a good illustration of this in the employment of natives in India :—

Oh, life is cheap in the golden East,
And labour even cheaper:
But the seed for which you have paid the least
Brings least at last to the reaper!

In my remarks upon the subject at the International Congress of Architects eight years ago I paraphrased the old saying that "nothing succeeds like success" by "nothing succeeds like failure," because I believe that a proper study of failures will do more than anything else to ensure success. In 1912 the Concrete Institute formed an "Investigation Committee" for the purpose of studying failures as they occurred, but the natural desire of all parties concerned to hush up the failures has prevented the Committee so far from doing much useful work, unless the fact of its existence acts as a bogy to frighten the careless operative. It may be well to remind you that a schedule has been drawn up for recording the details of such failures as are brought to the notice of any member, and all such schedules are treated as confidential by the Committee unless permission is given by the parties concerned to make public use of them. It is the misfortune of engineers that their successful works, unless of exceptional magnitude, are without interest to the man in the street, while their unsuccessful works attract more attention than is desired. Architects are not quite so badly off, because their works appeal more to the eye of the general public, and if anything does go wrong they meet with some sympathy. The bond of association which renders it possible for engineers and architects to meet freely within the walls of our Institute lies undoubtedly in the fact that the subjects discussed have similar interest for both. There is a sort of neutral zone in reinforced concrete construction where the engineer and architect are equally at home, and this alone renders our Institute unique in its membership.

The scientific principles of reinforced concrete and structural mechanics are now so well known that the failures due to ignorance on the part of the designer are conspicuous by their absence, but frequently there are failures reported which are due to the formwork being badly designed and fixed or removed too early. Too often these matters are left to the foreman carpenter, and, however conscientious he may be, his goodwill is no substitute for experience. *Festina lente* ("Make haste slowly") is, I think, an exceptionally good motto for us and our work. Near Auburn, California, a reinforced concrete bridge in three spans was under construction towards the end of last year. The work was being rushed day and night by the contractors in order that it might be finished before the river rose, and on the night of November 4 the formwork under one end span collapsed, allowing the whole mass to fall, killing some of the workmen and injuring several others.

In engineering works, such as reservoir dams, other causes of failure have been found, one of the most remarkable of which is the action of alkali on concrete. Where junctions occur between successive portions of the work a leakage is most likely to take place, and if any alkali exists in the earth resting against the wall which the leakage can reach a very rapid disintegration of the concrete is found to take place.

A curious objection has been taken to building in reinforced concrete, which is that it is so difficult to pull down. It is frequently said that it costs more to destroy a building than it does to put it up. It must be admitted that this method of building does not lend itself readily to alterations; and, although I have not personally come across a case where this has been a serious matter, there is a recent instance in Germany where some concrete vaults which had to be removed cost twice as much to destroy as they had cost to build. In some other cases it has been found that only by recourse to blasting operations has it been possible to break up the work in this material, but the imperishable character of the structure and the small cost of upkeep are really very great points in its favour. Their inherent strength and the nature of their stability render these buildings peculiarly suitable to withstand vibration, and even earthquake, whereas ordinary construction is only stable while at rest, and the slightest earth tremors may have a disastrous effect.

The Council have in hand a standard specification for reinforced concrete which is nearing completion, and if more uniformity in drafting specifications for such work can thereby be obtained there will be more certainty in the tendering and a greater absence of sporting items. The absence of immoderate or harsh clauses should lead not only to better work, but also to cheaper construction. In publishing a model specification, however, and in widely circulating the information contained in the papers read at the meetings there is some risk of encouraging incompetent men to attempt to prepare designs and carry through construction in reinforced concrete; but, although such works would be likely to be small and insignificant, it cannot be pointed out too emphatically that success can only be obtained by employing men who have specialised in this class of work. Three years ago in Boston, U.S.A., the corner of a large building collapsed owing to improper foundations being put in for a column supporting a great weight, and the contractor was killed. He was acting as architect as well as builder, although a few years previously he was only a teamster. Was this an accident or a just retribution? Nature has no mercy, and if her laws are broken the penalty is certain. At the Sixth Congress of the International Association for Testing Materials, held at New York in 1912, the question of universal standard specifications was mooted, but there seem to be insuperable difficulties in the way at present. It was suggested that when each country got its own perfect specification it would be time to compare them and arrive at a single result, but I am afraid we are a very long way yet from that happy end.

I think it may be useful for us to consider for a few minutes what is the usual method followed at present for obtaining the design for the structural parts of a reinforced concrete building, and whether that method conduces to economy. The routine in most cases is for the architect to prepare an outline drawing, showing the plan of each floor, with the cross walls, openings for doors and windows, and positions of stairways, lifts, etc., marking on it the loads to be carried and the height of each floor. He then obtains designs and estimates from a certain number of firms who devote themselves to this class of work but are each identified with a particular detail of construction, and, selecting the offer which he considers the most suitable and economical, completes his own designs and puts them before his client for approval. Now the question is, does this method lead to economy and security? The designs so obtained, being competitive, are naturally based upon the minimum requirements of safety, and leave no margin for accidental errors or faulty material or workmanship, and some of the failures may possibly be due to this cause. I do not intend this as any reflection upon the skill or honesty of the specialists who at present prepare the majority of the designs, but it is not in human nature to provide more than the bare necessity of the case demands when the success of the tender depends upon the cost being kept down to a minimum. The Institution of Civil Engineers has recently issued a circular deprecating the preparation of designs in competition. As a consulting engineer I may perhaps be biased, but I am of opinion that collaboration between the architect and the structural engineer is the preferable course, so that a single design may be prepared upon which contractors may tender upon a common basis. Against this it is often said that engineers' designs are expensive, and that there is no advantage in calling in an independent expert to prepare the design; but I think it will generally be found that the additional cost is due solely to a larger amount of reinforcement than appears in competitive designs, with the result that the building gains in greater stability.

There is another aspect of the case, and that is that when several designs are submitted the cost of the unaccepted designs has to be met somehow. It increases what we may call the establishment charges, which must be met by a percentage added to the actual cost of all work, and the only advantage appears to be that with many men working upon the same scheme some one among the many may evolve a better result than one man alone would be likely to do.

The Local Government Board are responsible for retarding the progress of reinforced concrete to a very great extent. Many structures that would have been put up in that material have not even got so far as the design, because of the known opposition of the Board and the heavy expense thrown upon the promoters by reason of the short period for which a loan would be granted. They have fixed no actual periods for loans for the various classes of work, as each case is considered on its merits, having regard to the purpose of the work and its position, but they vary usually from ten years where the work is in contact with water to thirty years in the floors of a building.

If there were any reasonable doubt as to the probable duration of reinforced concrete structures in general the Council of the Concrete Institute would be the first to know it, but they have the evidence of their own personal investigations that it exceeds fifty years, and they do not hesitate to advise its use where that is not hampered by the consideration of a loan through the Local Government Board. When the Eddystone Lighthouse was pulled down in 1884 a bundle of iron rods which had been accidentally left in the concrete foundation in 1757 (127 years) was found to be in perfect condition, and one would have supposed that was in a sufficiently exposed situation to prove the safety against corrosion.

Within my knowledge the construction of a large reinforced concrete seaside pier was quite recently abandoned after completion of the designs because the Local Government Board would only allow ten years for the repayment of a loan for its construction. In another case the Local Government Board refused to allow more than ten years for the repayment of a loan of £10,000 for a reinforced concrete storage-tank. The tank was then redesigned in mass concrete to cost £13,750, for which the Board allowed twenty-five years for the loan repayment, making the annual charge £880, as against £1,233 which would have been required for the less-costly tank on the ten years' basis. Had twenty-five years been granted in the first case, the annual charge would only have been £640. Fortunately, there are many cases that do not depend upon official mercy. A sea wall, 300 ft. long, in reinforced concrete has just been erected at Carnarvon by the Harbour Trust in extension of an existing masonry wall, to afford increased wharfage for oil-tank steamers and to reclaim about two acres of the foreshore. The existing heavy masonry structure, 20 ft. high from shore to coping, rested on a foundation 6 ft. below shore level, and it was originally intended to construct the extension in a similar manner. There were many ingenious features in the design carried out, but the point I want to make is that the cost of this work in reinforced concrete was about £2,000, while the lowest tender for a masonry wall was £4,600. The corrosion of the reinforcing rods when the concrete is in contact with water, fresh or salt, continuously or intermittently, is only possible under exceptional circumstances."

A vote of thanks to the President was proposed by Mr. E. P. Wells, J.P., Past-President, seconded by Sir Henry Tanner, C.B., I.S.O., F.R.I.B.A., Past-President, supported by Mr. E. Fiander Etchells, F.Phys.S., A.M.I.Mech.E., Hon.A.R.I.B.A.

List of Competitions, Contracts, etc.

For some contracts still open, but not included in this List, see previous issues. **Those with an asterisk (*) are advertised in this number:** Competitions, —; Contracts, iv. vi. viii. x.; Public Appointments, xviii.; Auction Sales, —. Certain conditions beyond those given in the following information are imposed in some cases, such as: the advertisers do not bind themselves to accept the lowest or any tender; that a fair wages clause shall be observed; that no allowance will be made for tenders; and that deposits are returned on receipt of a bona-fide tender unless stated to the contrary.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

*** It must be understood that the following paragraphs are printed as news, and not as advertisements; and that while every endeavour is made to ensure accuracy, we cannot be responsible for errors that may occur.

Competitions.

DECEMBER 4.—**Southend-on-Sea.**—TUBERCULOSIS HOSPITAL.—The Corporation invite schemes for a tuberculosis hospital. Premiums, £100, £50, and £25 respectively.

DECEMBER 7. — **Bedfordshire.**—SCHOOL.—The Bedfordshire C.C. invite architects willing to compete in a limited competition for a secondary school to submit their names. See advertisement in issue of November 20.

DECEMBER 31.—**Dumfries.**—WORKMEN'S HOUSES.—The T.C. of Dumfries invite architects to submit competitive plans for the erection of workmen's houses in Dumfries. Particulars of the Town Clerk, Dumfries.

JANUARY 15, 1915.—COLLEGE MEMORIAL LECTURE HALL.—Designs for the Alexander Thompson Travelling Studentship must be delivered by the above date. See advertisement in issue of January 30. (We hear that owing to the war the Trustees have decided to postpone this competition for one year.)

FEBRUARY 8.—**Liverpool.**—WORKMEN'S DWELLINGS.—The Liverpool Corporation invite designs for workmen's dwellings for about 500 persons. Premiums, £100, £50, and £25 respectively. See advertisement in issue of November 13.

Contracts.

BUILDING AND PAINTING.

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

NOVEMBER 28.—**Newburn Hall-on-Tyne.**—SCHOOL.—Erection of infants' Council school at Newburn Hall-on-Tyne, to accommodate 350 scholars, for the County of Northumberland E.C. Names to Mr. C. Williams, Secretary to the E.C., The Moothall, Newcastle-on-Tyne. Deposit, £2 2s.

NOVEMBER 30.—**Annfield Plain.**—HOUSES.—Erection of three houses at Chopwell, for the Annfield Plain Industrial Cooperative Society, Ltd. Specifications of Mr. G. T. Wilson, architect, 22, Durham-road, Blackhill.

* NOVEMBER 30.—**Bishops Waltham.**—RIFLE RANGE.—The Southampton Territorial Force Association invite tenders for the erection of a rifle range.

NOVEMBER 30.—**Glamorgan.**—SCHOOL, ETC.—(1) Boundary wall and levelling playground at Aberdulais School; (2) alterations to windows at the girls' and infants' schools, and extension of infants' cloakroom at Blaengarw; (3) new school at Hendreforgan, near Gilfach Goch, for the Glamorgan C.C. Specifications of Mr. W. E. R. Allen, Glamorgan C.C., County Hall, Cardiff.

NOVEMBER 30.—**Hexham.**—MORTUARY, ETC.—Erection of mortuary and ambulance shed near the hospital, Hexham, for the U.D.C. Specification at the Council Offices, Hexham.

NOVEMBER 30.—**Penclawdd.**—SEA WALL.—Erection of a sea wall 380 yds. in length, to be built in cement concrete, between the road and the beach, from the Royal Oak Hotel to Tabernacle Chapel at Penclawdd, for the Gower R.D.C. Quantities of Mr. H. J. Ind, Clerk, Central-buildings, Fisher-street, Swansea. Deposit, £1 1s.

NOVEMBER 30.—**Warrington.**—PAINTING.—For painting certain buildings at the cemetery. Specifications of the Borough Surveyor, Town Hall.

DECEMBER 1.—**Aldershot.**—SHED.—Erection of timber-framed shed and repairing, etc., water-carts. Particulars of Mr. F. C. Uren, Surveyor, at the Council Offices.

DECEMBER 1.—**Clara, King's Co.**—HOUSE.—Erection of a dwelling-house in town of Clara, King's Co., for Mr. S. Clyne. Specifications of Mr. Patrick Menton, architect, Moate.

DECEMBER 1.—**Cookham.**—GIRDER BRIDGE.—Erection of a small girder bridge on the Drift-road, Bray, for the Cookham R.D.C. Specifications of Mr. William Weed, Clerk, Queen-street-chambers, Maidenhead.

DECEMBER 1.—**Gosforth.**—STORE SHEDS.—Erecting store sheds and other buildings, together with boundary walls, entrance gates, and creosoted military fencing, etc., at the Council's store yard and refuse destructor site. Quantities of the Engineer, Mr. George Nelson, Council-chambers, High-street. Deposit, £2 2s.

DECEMBER 1.—**Warrington.**—DECORATION.—For the decoration of the dining-hall and kitchens at the Union Workhouse, Warrington. Specifications of Mr. Arthur Bottomley, Clerk, Union Offices, Bewsey-chambers, Warrington.

DECEMBER 1.—**Wolsingham.**—PAVILION.—Erection of a pavilion for forty patients at the County Sanatorium, Holywood Hall, Wolsingham, for the Durham C.C. Quantities at the County Surveyor's Office, Shire Hall, Durham.

DECEMBER 2.—**Beckenham.**—PAINTING.—For painting and distempering public elementary schools in the district of the U.D.C. Specifications of Mr. J. A. Angell, Surveyor, Beckenham.

DECEMBER 2.—**Cramlington.**—STABLES, ETC.—Erection of stables, cart-shed, etc., for the Cramlington U.D.C. Specifications of the Surveyor, Mr. William J. Coulson, Council Offices, Cramlington.

DECEMBER 2.—**Ipswich.**—PAINTING.—For painting, etc., at the Guardians' Offices and adjoining premises. Specification of Mr. L. W. Greenhaigh, Clerk, Guardians' Offices, 19, Tower-street, Ipswich.

DECEMBER 2.—**Llantarnam.**—FIRE-STATION.—Erection of fire-station at Cwmbran, for the Llantarnam U.D.C. Specification of Mr. A. Gordon Jones, Surveyor, Council Offices, Cwmbran.

DECEMBER 2.—**Manchester.**—SKYLIGHTS.—Taking down lanterns over women's baths at Leaf-street, and providing and fixing new patent-glazed skylights, for the Manchester Corporation. Specifications of the City Architect, Town Hall. Deposit, £1 1s.

DECEMBER 3.—**Brighton.**—HOSTEL.—Erection of a hostel in connection with the Municipal Training College, for the Brighton E.C. Quantities of Messrs. T. Simpson & Son, 16, Ship-street, Brighton. Deposit, £3.

DECEMBER 3.—**Prestwich.**—PAINTING, ETC.—For painting and decorating (1) at the Workhouse, Delaunay's-road, Crumpsall; (2) at the offices, Cheetham Hill-road, Manchester, for the Prestwich Board of Guardians. Specifications of (1) of Mr. Hill, the Master, and of (2) at the Union Offices, Cheetham Hill-road, Manchester.

DECEMBER 3.—**Sheffield.**—PLUMBING AND GLAZING.—For plumbers' and glaziers' work required for general repairs during the year 1915, for the Sheffield E.C. Specifications at the office of the E.C., Leopold-street, up to November 28.

DECEMBER 4.—**Barnet.**—SHED.—Erection of corrugated-iron store shed, etc., for the Friern Barnet U.D.C. Particulars of Mr. E. J. Reynolds, Surveyor, Council Offices, Friern Barnet.

DECEMBER 4.—**Rochdale.**—SCHOOL.—Erection of a school (500 children), with handicraft and cookery centre, in King's-road. Quantities from Mr. P. W. Hathaway, A.R.I.B.A., Town Hall, Rochdale.

DECEMBER 4.—**Shrewsbury.**—PARTITION.—Extending a partition, etc., at Besford House, Belle Vue, Shrewsbury, for the Atcham Union. Specifications of Mr. J. T. Howes, Besford House, Belle Vue, Shrewsbury.

DECEMBER 5.—**Lockwood.**—ADDITIONS.—Erection of additions to mill premises, offices, etc., Lockwood. Quantities of Messrs. Lunn & Kaye, architects, Huddersfield.

DECEMBER 5.—**Wexford.**—ALTERATIONS, ETC.—For carrying out alterations to the Workhouse buildings and supplying and erecting sanitary conveniences, for the Wexford Union. Specifications of Mr. Nicholas Kehoe, Clerk of Union, Wexford.

DECEMBER 7.—**Itchen Sholing.**—SCHOOL.—Erection of a new Council school for 404 boys at Sholing, for the Southampton C.C. Quantities of Mr. A. L. Roberts, Architect to the E.C., The Castle, Winchester. Deposit, £1 1s.

DECEMBER 7.—**Rochford.**—PAINTING, ETC.—Painting, etc., (inside and out), and certain repairs at (1) the Workhouse, Rochford (G.E.R.); (2) Acacia House, Rochford; (3) children's homes, Leigh (M.R.), for the Rochford Board of Guardians. Specifications of the Clerk of Works, Rochford Workhouse.

DECEMBER 7.—**Sheffield.**—SCHOOL EXTENSIONS.—(1) New school medical department, Sims-street; (2) Manor Council School, alterations and extension. Quantities of the City Architect, Town Hall, Sheffield.

DECEMBER 8.—**Ebbw Vale.**—HOMES.—The erection of two semi-detached homes for children at Ebbw Vale, for the Bedwellty Union. Specifications of the Architect, Mr. David Morgan, F.R.I.B.A., Charles-street-chambers, Cardiff.

* DECEMBER 8.—**Pelsall.**—SCHOOL.—The Staffordshire E.C. invite tenders for erection of a school.

DECEMBER 9.—**Manchester.**—CONVERSION.—Conversion of two arches into electric sub-station and battery station at Victoria Station, Manchester, for the Lancashire and Yorkshire Railway Company. Quantities at the Engineer's Office, Hunt's Bank, Manchester.

* DECEMBER 10.—**Stockwell.**—REPAIRS TO IRON GUTTER.—The Metropolitan Borough of Lambeth invite tenders for renewal of iron gutters.

DECEMBER 10.—**Tenby.**—SCHOOL.—Erection of new Council school buildings at Tenby, for the Pembrokeshire Education Authority. Quantities of the Authority's Architect, Mr. Owain T. Thomas, County Education Offices, Haverfordwest. Deposit, £1 1s.

* DECEMBER 11.—**Lee Green.**—EXTENSION OF TELEPHONE EXCHANGE.—The Commissioners of H.M. Works, etc., invite tenders for extension of Telephone Exchange.

* DECEMBER 11.—**London.**—CONNECTING CORRIDOR.—The Commissioners of H.M. Works, etc., invite tenders for erection of a connecting corridor at British Museum.

DECEMBER 11.—**Wallasey.**—EXTENSIONS.—Extensions to Wallasey Grammar School, for the Wallasey E.C. Quantities of Messrs. Willink & Thicknesse, architects, of 14, Castle-street, Liverpool. Deposit, £2 2s.

DECEMBER 14.—**Ashton-under-Lyne.**—PAINTING.—For painting, etc., at the following schools:—Cockbrook, Charlestown, Christ Church Central Mixed, Christ Church Central Infant, and Gatefield. Specifications at the Education Office, Ashton-under-Lyne.

* DECEMBER 14.—**Leigh-on-Sea.**—ELECTRICITY SUB-STATION.—The Southend-on-Sea Corporation invite tenders for erection of an electricity sub-station, etc.

DECEMBER 14.—**St. Rollox.**—ENGINE SHED.—Construction of an engine shed and relative works at Balornock, near St. Rollox, for the Caledonian Railway Company. Schedule of the Company's Engineer, Buchanan-street Station, Glasgow. Deposit, £2 2s.

* DECEMBER 14.—**Walthamstow.**—ALTERATIONS AND IMPROVEMENTS.—The Walthamstow E.C. invite tenders for internal alterations and improvements to a school.

* DECEMBER 16.—**Blackwall.**—DISINFECTOR AND ALTERATIONS.—The Metropolitan Asylums Board invite tenders for erection of a disinfector building and alterations to staff changing-rooms.

* DECEMBER 16.—**Stockwell.**—ALTERATIONS AND ADDITIONS.—The Metropolitan Asylums Board invite tenders for alterations and additions to an ambulance station.

DECEMBER 18.—**Wetherby.**—SCHOOL.—Erection of Wetherby new school, for the West Riding Education Committee. Quantities of the Education Architect, County Hall, Wakefield. Deposit, £1.

DECEMBER 30.—**East Stow.**—HOUSES.—For erecting working-class dwellings in the parish of Burhall, for the East Stow R.D.C. Specifications of Mr. Henry E. Wilkes, Clerk, Council's Offices, Market-place, Stowmarket. Deposit, £2 2s.

NO DATE.—**Acton.**—283 COTTAGES.—The Acton Wells Provident Tenants' Cottage Society, Ltd., invite tenders for erection of 283 cottages.

NO DATE.—**Dewsbury.**—DEMOLITION.—Pulling down of brick chimney at Cloth Hall Mills, Dewsbury. Particulars of the Secretary, Messrs. Machell Bros., Ltd.

NO DATE.—**Lichfield.**—ENLARGEMENT.—Enlargement of the children's homes, Wissage, Lichfield, by the erection of two additional rooms. Names to Mr. R. J. Barnes, architect, Bore-street, Lichfield. Deposit, £1 1s.

NO DATE.—**Mansfield.**—JOINERY, ETC.—Supply of large quantity of joinery, or the erection of certain sections of the Army Camp, Mansfield. Apply Messrs. J. Hodson & Son, Ltd., Castle Boulevard, Nottingham.

NO DATE.—**Wigton.**—BUILDING WORK.—For building work construction of 120-ft. high chimney stack, reinforced-concrete floors, together with joiner work, painting, etc., for Messrs. Carr, White & Co., Ltd., of Wigton. Names to Mr. J. J. Davison, architects, Wigton.

FURNITURE, MATERIALS, etc.

NOVEMBER 30.—**Rhondda.**—MATERIALS, ETC.—Supply to the Rhondda U.D.C. of bricks, stone, Supply of ironmongery and stoneware pipes, to castings, street gratings, manhole covers, etc., paving, kerb, Portland cement, and road macadam. Forms of tender, etc., of Mr. E. Hagledine Barber, Engineer, Council Offices, Penire, Rhondda, Glam.

* NOVEMBER 30.—**Southwark Park.**—IRON FENCING.—The London C.C. invite tenders for supply and fixing of wrought-iron unclimbable fencing.

DECEMBER 1.—**Wealdstone.**—GRANITE.—Supply to Wealdstone U.D.C. of about 600 tons of 2-in. broken granite, 100 tons of 1-in. to 1½-in. broken granite, and 200 tons of ¾-in. granite chippings. Samples to Mr. Herbert Walker, C.E., Surveyor, Wealdstone.

DECEMBER 2.—**High Wycombe.**—MATERIALS.—Supply of ironmongery and stoneware pipes to the Corporation. Forms of tender of Mr. T. J. Rushbrooke, Borough Engineer, High Wycombe.

[Those with an asterisk (*) are advertised in this issue.]

FURNITURE, etc.—*continued.*

The date given at the commencement of each paragraph is the latest date when the tender, or the names of those willing to submit tenders, may be sent in.

DECEMBER 2.—**London.**—MATERIALS.—Supply to the Holborn Union, London, of materials, including timber, brushes, oilmen's goods, engineers' work, gasfittings, etc. Forms of tender at 53, Clerkenwell-road, E.C.

DECEMBER 3.—**Nottingham.**—MATERIALS.—Supply to the Corporation of materials, including cement, blue lias lime, red bricks, blue bricks, timber, earthenware pipes, etc.; earthenware pipes, etc. (patent joints); iron castings, iron galleys, etc.; Yorkshire flags, kerb, etc.; granite setts, kerb, and broken granite, etc. Forms of tender of Mr. Arthur Brown, City Engineer, Guildhall, Nottingham. Deposit, 5s.

DECEMBER 5.—**South Hetton.**—MATERIALS.—Supply to the South Hetton Coal Company, Ltd., of iron castings, wire rope, and other colliery stores except oils and timber. Forms of tender from Mr. J. R. Lambert, South Hetton, near Sunderland.

DECEMBER 7.—**Cambridge.**—STONE.—Supply to the Corporation of broken granite, syenite, and basalt or similar stone. Specification of the Borough Surveyor, Guildhall, Cambridge.

DECEMBER 8.—**Buckhurst Hill.**—GRANITE.—Supply to U.D.C. of broken granite and hire of steam roller. Forms of tender of Mr. Thos. J. Tee, Clerk, Council Offices, Buckhurst Hill.

DECEMBER 8.—**Middlesbrough.**—STORES.—Supply to the Tees Conservancy Commission of timber, castings, bolts and nuts, brass and copper work, cement, oils and paints, etc. Forms of tender of Mr. John H. Amos, General Manager, Head Offices, Middlesbrough.

DECEMBER 10.—**Dublin.**—STORES.—Supply to the Dublin and South-Eastern Railway of stores for twelve months, including carriage bolts, carriage furniture, foreign timber, glass, ironmongery paints, oils, etc., plumbing and gasfitting, etc. Forms of tender of Mr. A. G. Reid Secretary, Westland-row Station, Dublin. Charge, 6d. each.

DECEMBER 10.—**Macclesfield.**—MATERIALS.—Supply to the Corporation of macadam, kerbs, setts, drain pipes, castings, cement, bricks, timber, hardwood, and disinfectants. Forms of tender at the Borough Engineer's Office.

DECEMBER 10.—**West Ham.**—MATERIALS.—Supply to West Ham Union of electrical fittings and engineers' oils. Forms of tender of Mr. Thomas Smith, Clerk, Boardroom, Union-road, Leytonstone, N.E.

* DECEMBER 11.—**London.**—WINDOW CLEANING.—The Commissioners of H.M. Office of Works invite tenders for window cleaning.

NO DATE.—**Trimdon Grange.**—STORES.—Supply to the Trimdon Coal Company, Ltd., of timber, oils and grease, iron, firebricks, and general stores. Forms of tender of Mr. I. Penney, Deaf Hill Colliery, Trimdon Grange, S.O.

ENGINEERING, IRON, AND STEEL.

NOVEMBER 30.—**Burma.**—METALS.—Supply to Burma Railways Company, Ltd., of metals. Specification of Mr. W. Home, Managing Director, No. 199, Gresham-house, Old Broad-street, London, E.C. Charge, £1.

NOVEMBER 30.—**London.**—FENCING.—Supply and erection of wrought-iron unclimbable fencing at Southwark Park, for the London C.C. Specification of the Chief Officer, Parks Department, 11, Regent-street, S.W.

DECEMBER 1.—**Croydon.**—STRUCTURAL STEELWORK.—Supply and delivery of about 375 tons of structural steelwork to Russel-hill reservoir, Pampisford-road, South Croydon. Specification at the Borough Engineer's Office, Town Hall, Croydon. Deposit, £1 1s.

DECEMBER 1.—**India.**—RAILS, ETC.—Supply to the Madras and Southern Mahratta Railway Company, Ltd., of (1) steel rails (about 4,018 tons); (2) steel fishplates (about 137 tons); (3) steel sleepers and keys (about 2,850 tons). Specifications at the Company's Offices, 91, York-street Westminster, S.W. Charge, £1 1s. each specification.

DECEMBER 2.—**Bethnal Green.**—ELECTRICITY APPARATUS.—Supply to the B.C. of Bethnal Green of (1) high-tension and low-tension cables and roadwork; (2) section (*a*), static transformers; section (*b*) sub-station switchgear. Specification of Mr. David J. Keep, Town Clerk, Town Hall, Bethnal Green. Deposit, £2 2s.

DECEMBER 2.—**Lichfield.**—STEEL GIRDER BRIDGE.—Erection of a steel girder footbridge, 63-ft. span, across the River Trent, between King's Bromley and Nethertown, for the Lichfield R.D.C. Quantities of Mr. C. O. Rawstron, District Surveyor's Office, Workhouse, Lichfield. Deposit, £1 1s.

DECEMBER 2.—**St. Pancras.**—BOILER, ETC.—Supply and fixing at North Infirmary, Dartmouth Park-hill, N., of a Lancashire boiler; also new steam pipes and building work in connection with boiler seatings, and sundry other works, for the Board of Guardians. Specifications of Mr. J. E. P. Hall, Clerk, Town Hall, Pancras-road, N.W. Deposit, £2 for each of the two sections.

DECEMBER 4.—**Linlithgow.**—PIPES.—Providing about 340 tons of 9-in. and 6-in. diameter dry sand cast-iron pipes and special castings, for the Linlithgow District Committee of the C.C. of the county of Linlithgow. Schedule of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72a, George-street, Edinburgh. Deposit, £1.

DECEMBER 4.—**Norway.**—RAILS, ETC.—The period for the delivery of tenders for 27,064 tons of steel rails and fishplates and 3,305 tons of bedplates, for the Norwegian State Railways is extended to December 4.

DECEMBER 7.—**Dundalk.**—STEEL TOWERS.—Erection of steel towers for carrying cables at Dundalk Works of the Great Northern Railway Company (Ireland). Quantities of Mr. T. Morrison, secretary, Amiens-street Terminus, Dublin. Deposit, £1 1s.

DECEMBER 7.—**Kirkcaldy.**—CAST-IRON PIPES.—Providing about 2,890 tons of 18-in., 12-in., and 6-in. diameter dry sand cast-iron pipes and special castings, for the Kirkcaldy District Committee of Fife C.C. Schedule of the engineers, Messrs. J. & A. Leslie & Reid, C.E., 72a, George street, Edinburgh. Deposit, £1.

DECEMBER 7.—**Sydney.**—STEEL PIPES.—Supply to the Metropolitan Board of Water Supply and Sewage, Sydney, of 20-in. steel pipes and specials. Copies of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

DECEMBER 8.—**Walsall.**—ELECTRICAL EQUIPMENT.—Supply to the Corporation of six 250-kw. rotary converter equipments and one 500-kw. rotary converter equipment. Specification, etc., of the consulting engineer, Mr. E. M. Lacey, M.Inst.C.E., 12, Victoria-street, Westminster, London, S.W. Deposit, £3 3s.

DECEMBER 17.—**Winchester.**—TURBO-GENERATOR.—Supply to the Winchester Corporation of one 500-kw., direct-current turbo-generator, complete with condensing plant, pipework, etc. Specifications of Mr. R. Ayton, City Electrical Engineer, Electricity Works, Winchester. Deposit, £3 3s.

JANUARY 13, 1915.—**Brisbane.**—CABLES, ETC.—The date for sending in tenders for paper-insulated and lead-covered cables, ironwork, and covered wire for the Deputy Postmaster-General of Brisbane has been extended to January 13. Copies of specification at the Commercial Intelligence Branch of the Board of Trade, 73, Basinghall-street, E.C.

NO DATE.—**Barnsley.**—DRIFTWAY.—Cutting and making driftway under railway lines. Particulars of Stairfoot Brickworks, near Barnsley.

ROAD, SANITARY, AND WATER WORKS.

NOVEMBER 30.—**Blackhall Colliery.**—ROADS.—Completion of certain roads and other works in connection therewith at Blackhall Colliery. Specifications of Mr. James Hamilton, Chief Surveyor.

NOVEMBER 30.—**Brentford.**—PAVING.—For radiated granite sett paving, etc., in Ealing-road, for the Brentford U.D.C. Specification of Mr. J. W. Croxford, Surveyor, Clifden House, Boston-road, Brentford.

NOVEMBER 30.—**Haddington.**—WATER PIPES.—Supplying and laying of 3 miles of 2-in. and 1½-in. cast-iron water pipes, for the Western District Committee of the Haddington C.C. Quantities of Messrs. Carter & Wilson, engineers, 51, Queen-street, Edinburgh. Deposit, £1 1s.

NOVEMBER 30.—**Manchester.**—SANITARY.—Execution of sanitary alterations at 1 and 27, Matlock-street, and 2, Willeston-street, for the Corporation. Specifications of the Manager of the Drainage Dpartment, Town Hall.

NOVEMBER 30.—**Prestwich.**—STREET WORKS.—Works of private street improvements in six back streets, for the U.D.C. of Prestwich. Specifications at the Surveyor's Office, Chester Bank. Deposit, £1 1s.

NOVEMBER 30.—**Romford.**—SEWERS.—Construction of foul and surface-water sewers, etc., in London-road, Jutsom's-lane, St. Andrew's-road, and Waterloo-road, for the Romford U.D.C. Quantities of Mr. Herbert T. Ridge, Surveyor, Council Offices, Market-place, Romford. Deposit, £2 2s.

NOVEMBER 30.—**Watford.**—DRAINAGE.—Redraining of four houses in Fearnley-street, for the U.D.C. Quantities of Mr. D. Waterhouse, Engineer, Council Offices, Watford. Deposit, £1.

NOVEMBER 30.—**Whitley.**—STREET WORKS.—Constructing the foundations of the carriageway of Grosvenor-drive for a distance of 160 ft., for the Whitley and Monkseaton U.D.C. Specification of Mr. A. J. Rousell, A.M.Inst.C.E., Surveyor to the Council, Council Offices, Whitley Bay.

DECEMBER 1.—**Gosforth.**—ROADS.—For forming approach roads on the south side of the Council's store yard and refuse destructor site at the old Regent Pit, for the Gosforth U.D.C. Quantities of the Engineer, Mr. George Nelson, Council-chambers, High-street.

DECEMBER 1.—**Gosforth.**—STREET WORKS.—Making-up the back street on the west side of Santon-street. Quantities of the Surveyor, Mr. George Nelson, Council-chambers, High-street, Gosforth.

DECEMBER 1.—**Reigate.**—WOOD-PAVING.—Supplying and laying, on a concrete foundation, about 14,844 super. yds. of creosoted wood-block paving. Quantities of the Borough Surveyor, Municipal-buildings, Reigate.

DECEMBER 2.—**Glamorgan.**—ROADS.—Widening the Ely and Cowbridge main road, between Ash Cottage and Culverhouse Cross, for the Glamorgan C.C. Quantities of Mr. W. E. R. Allen, Clerk, Glamorgan County Hall, Cardiff.

DECEMBER 2.—**Lewisham.**—STREET WORKS.—For making-up Dukesthorpe-road, Sydenham, for the Lewisham B.C. Two contracts. Specification of the Borough Surveyor, Town Hall, Catford.

DECEMBER 3.—**Clones.**—SEWERAGE WORKS.—(1) Supplying and laying about 600 lin. yds. of 9-in. stoneware pipe sewers; (2) supplying and laying about 1,200 lin. yds. of 9-in. and 15-in. stoneware and cast-iron pipe sewers; (3) supplying and setting to work 3½-b.h.p. electric motor and 3-in. centrifugal pump; also 6-b.h.p. petrol engine and 3-in. centrifugal pump, for the Clones U.D.C. Specifications, etc., of the consulting engineer, Mr. Henry J. Weaver, Northgate-mansions, Gloucester. Deposit, £3 each contract. Nos. 1 and 2 may be contracted for as one work.

DECEMBER 4.—**Godstone.**—TAR-WASHING.—Tar-washing certain highways during the season of 1915, for the R.D.C. of Godstone. Forms of tender of Mr. Geo. E. Crowter, Engineer, High-street, Godstone, Surrey.

DECEMBER 7.—**Billinge.**—BOREHOLE.—Putting down borehole for water purposes, for the Billinge U.D.C. Specifications of Mr. A. Darlington, Clerk, Council Offices, Billinge, near Wigan. Deposit, £2 2s.

DECEMBER 7.—**Heckmondwike.**—WATER MAINS.—Supply and laying of about 1,200 lin. yds. of 9-in. cast-iron water mains, for the Heckmondwike U.D.C. Specifications at the Surveyor's Office, Oldfield-lane, Heckmondwike.

DECEMBER 7.—**Hexham.**—WATER SUPPLY.—Supplying and laying of about 1,500 yds. of 3-in. cast-iron mains, branch pipes, sluice valves, standpipes, etc., and the construction of concrete service tanks, for the Hexham R.D.C. Specification of the Engineer, Mr. C. Franklin Murphy, Lloyds Bank-chambers, Morpeth. Quantities, £1 1s.

DECEMBER 7.—**Stanley.**—SEWERS.—Construction of main pipe sewers in Aberford-road, Barr-lane, and Bradford-road, for the Stanley U.D.C. Quantities of the Engineer, Mr. Frank Massie, Tetley House, Wakefield. Deposit £5 (note).

DECEMBER 8.—**Keighley.**—SEWER.—Construction of the Engineer, Mr. C. Franklin Murphy, Beechcliffe sewer. Particulars from the Borough Engineer, Keighley.

DECEMBER 9.—**Bingham.**—SEWERAGE WORKS.—Construction of sewerage and sewage-disposal works at Leyworth, for the Bingham R.D.C. Quantities of Mr. C. W. Kendrick, Sanitary Surveyor, Bingham. Deposit, 5s.

DECEMBER 10.—**Topsham.**—WATERWORKS.—Construction of about 7,250 yds. of 4-in. and 3-in. cast-iron water mains, with the necessary valves, hydrants, etc., engine and pump house, ferro-concrete water tower, oil engines, and deep well pumps, and other works in the parish of Topsham, Devonshire. Quantities of the Engineer, Mr. Sidney R. Lowcock, 6, Queen Anne's-gate, Westminster, S.W., or at the offices of the R.D.C., 9, Bedford-circus, Exeter. Deposit, £5.

DECEMBER 15.—**Rhondda.**—SEWERAGE WORKS.—(1) Construction of about a mile of sewer; (2) supply of cast-iron pipes, for the Rhondda U.D.C. Specifications, etc., of Mr. E. Hazledene Barber Engineer, Council Offices, Pentre, Rhondda. Deposit, £25.

DECEMBER 17.—**Ramsbottom.**—SEWAGE WORKS.—Construction of a percolating filter, sludge filters, together with sludge wells, sludge carriers, effluent carriers, etc., for the Ramsbottom U.D.C. Quantities of the engineers, Messrs. James Diggle & Son, 14, Victoria-street, Westminster, S.W., and Hind Hill-street, Heywood, Lancashire. Deposit, £2.

JANUARY 1, 1915.—**Belfast.**—DRAINAGE, ETC.—Draining and levelling a part of the University athletic field (about 6 acres), Newforge-lane, Malone-road, Belfast, for the Committee of the Better Equipment Fund of the Queen's University, Belfast. Quantities from Professor F. H. Hummel, Engineering Department, Queen's University. Deposit, £1 1s.

NO DATE.—**Horbury.**—PAVING.—Paving of School-lane for the Horbury U.D.C. Quantities from Mr. W. Sugare, Engineer and Surveyor, Town Hall, Horbury.

Public Appointment.

* DECEMBER 10.—ASSISTANT AND DRAUGHTSMAN.—The Shoreditch B.C. invite applications for the above temporary post. Salary, £2 10s. per week.

TO CORRESPONDENTS.

NOTE.—All communications with respect to literary and artistic matters should be addressed to "THE EDITOR" (and not to any person by name); those relating to advertisements and other exclusively business matters should be addressed to THE BUILDER LTD., and not to the Editor.

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We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

All drawings sent to or left at this office for consideration should bear the owner's name and address on either the face or back of the drawing. Delay and inconvenience may result from inattention to this.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

N.B.—Illustrations of the First Premiated Design in an important architectural competition will always be accepted for publication by the Editor, whether they have been formally asked for or not.

[Those with an asterisk (*) are advertised in this issue.]

LAW REPORTS.

KING'S BENCH DIVISIONAL COURT.
(Before Justices RIDLEY, AVORY, and LUSH.)

The Approval of Plans:
The King *v.* the Foots Cray Urban District Council, *ex parte* Hoare & Co., Ltd.

THEIR Lordships had before them this case, by which they were asked to compel the Foots Cray Urban District Council to pass certain plans of a building proposed to be erected in their district. The plans related to alterations of a building of the shape of an "L." The whole of the upright part of the "L" had been taken down, put back, and enlarged, and certain alterations were proposed with reference to the remainder of the building. The question arose whether the whole of the building was a "new building" for the purpose of the by-laws, or only such part as was taken down and rebuilt. The builder only submitted plans of the portion to be rebuilt, but had since supplied plans of the remainder. The Council disapproved the plans on the ground that they were not in accord with the by-laws. In these circumstances Messrs. Hoare & Co., Ltd., the owners of the building, obtained a *rule nisi*, calling upon the Council to show cause why they should not approve the plans, and in this way the matter came before the Court.

After hearing arguments at some length their Lordships refused to compel the Council to approve the plans, holding that where a person pulled down a part of a building and wanted to re-erect it the whole of the building, including the part pulled down, must be deemed to be a new building, and must all comply with plans approved by the local authority and complying with the by-laws.

New Point under the London Building Act: What is "A New Building"?

AT the Greenwich Police Court recently Mr. Drummond gave his considered judgment in a case which raised a new point under the London Building Act. Messrs. Higgs & Hill, Ltd., Crown Works, South Lambeth-road, were summoned by Mr. Baxter Greig, District Surveyor for Deptford, for failing to comply with a notice of irregularity in respect of a building at the junction of Pepys and Kitto roads, Hatcham. The irregularity complained of was that the doors did not open outwards. Mr. Godlee defended.

Mr. Greig said the summons referred to the Church of St. Catherine, Hatcham, where a fire took place early in May, 1913. The roof of the nave and chancel were destroyed. Rebuilding operations were commenced, and it was decided to extend the chancel by 10 ft. 6 in. and to erect additional vestries. To carry this out the east wall was raised to the ground, leaving an open space with the roof off. He contended that this was "a new building," because what remained of the church was less than one-half of the cubical extent of the building. He understood that the argument on the other side was that the building should be regarded as if the roof was still on; but this could not be so, because in rebuilding the roof might be raised or lowered, or made a flat roof, and this made a great difference in the cubical extent. He argued that this being a new building, the doors must open outward. The building had been set on fire once, and he could not take the responsibility of leaving a church with the doors opening inward.

Mr. Godlee: The Suffragettes have retired now.

Mr. Godlee argued that the church was not a new building. A building that had been burned or destroyed could not be said to have been "taken down." Only the end wall had been actually taken down. It could not be said that more than half the cubical extent had been "taken down." Taking off the roof did not take off the cubical extent. Because Mr. Greig could not measure what was left that did not prove that more than one-half of the cubical extent had been taken down; it might show that he could not measure how much had been taken down.

Mr. Greig said the roof was the most important thing, and if there was no roof there was no building. It was admitted that if the church was not a new building the doors need not open outward.

Mr. Drummond said that he had carefully considered the case, and had tried to reconcile law with common sense, which it was not always possible to do. He thought, however, that it was possible in this case. He did not think the question of whether the burning of the church was "taking down" was a serious one. This church had been taken down to within 5 ft. and 6 ft. of the ground. He thought it would be going rather too far to say that a building which remained perfectly intact, with its aisles, the walls, and the nave, and the west wall, and which had only lost its roof and its east wall, was a new building. From the common-sense point of view he thought he must regard it not as a new building, but as an old building repaired. The Act of Parliament raised the question whether the church had been taken down more than one-half its cubical extent, and he must decide that it had not been taken down more than one-half, and was therefore not a new building within the meaning of the London Building Act. The summons would therefore be dismissed. His worship added, with regard to the doors opening outwards, that he thought this was a matter for arrangement between the District Surveyor and the architects for the parties concerned.

Breach of Contract.

AT Coventry County Court on the 24th inst., before Judge Cann, Mr. D. R. Parry-Jones, architect, Coventry, was sued by Mr. Samuel Williams, plasterer, for £42, damages for breach of contract with respect to the erection of six houses. Plaintiff's case was that Mr. Parry-Jones entered into a contract with him for the plastering of these houses. Mr. Parry-Jones learned that plaintiff was a non-union man, and consequently told him not to start on the work until he got a permit from the Plasterers' Union. This plaintiff was unable to obtain, and he afterwards ascertained that the plastering had passed into other hands. The defence was that the plaintiff had been notified that if he brought non-union men on to the buildings the carpenters and bricklayers, who were trade unionists, would cease work. Plaintiff had expressed his regret at the situation, and defendant consequently considered that the matter was ended.

His Honour held that the circumstances did not release the defendant from responsibility under the contract, and gave judgment for the plaintiff for £20 and costs.

BUSINESS PREMISES, MARYLEBONE.

Messrs. T. H. Kingerlee & Sons, Oxford and Shepherd's Bush, W., are engaged on the foundations of new business premises in the High-street, Marylebone, W. The architect is Mr. F. M. Elgood, F.R.I.B.A., Wimpole-street, W.

BRIDGE, BOCKING.

The new bridge erected by the Braintree Rural District Council over the Blackwater River at Bocking Church Street has recently been opened. The total cost of the bridge—which takes the place of an ancient wooden structure—including the cost of land and the making up of the approaches on either side, was about £1,900. The bridge has been named the King's Bridge, in commemoration of the reign of King Edward VII. and the Coronation of George V. It has two arches and is 25 ft. wide, with easy gradients at each approach. The engineer for the work was Mr. H. H. Sands.

CHURCH, MITCHAM.

The new church of St. Barnabas, Mitcham, has recently been opened. The church is built in Gorringe Park-avenue upon a site surrounded upon three sides by roads. The architect is Mr. H. P. Burke Downing, F.R.I.B.A. It is intended to accommodate about 830 people, but the north aisle, with morning chapel, is for the present omitted. The cost of the fabric is about £9,500. A drawing of the exterior of the church and a short description of the building were published in the *Builder* on October 18, 1912. A drawing of the interior, together with a plan, also appeared in our issue of February 20, 1914.

REGENT PALACE HOTEL, W.

The Regent Palace Hotel, Glasshouse-street, Piccadilly-circus, is in active progress under the superintendence of the architects, Mr. Henry Tanner, F.R.I.B.A., and Mr. F. J. Wills. The general contractors are Messrs. Mowlem & Co., Ltd., Grosvenor Wharf, Westminster; the steelwork is by Messrs. Dorman, Long, & Co., Middlesbrough; the sanitary work is by Messrs. Dent & Hellyer, Ltd., Red Lion-square, W.C.; the mosaic work is by Messrs. Diespeker & Co., Ltd., Holborn-viaduct, E.C.; the metal windows are by the Crittall Manufacturing Company, Ltd., Braintree; the sashes are hung with Messrs. Rhodes's pulleys and chains, Stoke Newington; the fibrous plaster decorations are by Messrs. Marshall & Co., Sulgrave-road, Hammersmith; the vacuum cleaning arrangements are being installed by Messrs. Waygood & Co., Ltd., Falmouth-road, S.E.; and the building is being faced with Burmantofts Marino (the Leeds Fireclay Company, Ltd., Norfolk-street, Strand, W.C.).

PATENTS.

APPLICATIONS PUBLISHED.*

24,730 of 1913.—James George Galley: Fanlights or other hinged windows.

27,131 of 1913.—Joseph Stretch: Means and method for the construction of reinforced concrete buildings.

28,953 of 1913.—Arthur Roberts: Apparatus for operating sidelights, ventilators, or the like, of greenhouses or other buildings or erections.

29,295 of 1913.—William Newman & Sons, Ltd., and George Frederick Newman: Retaining or holding devices for swing and other doors.

29,327 of 1913.—Robert William Bullick: Appliances for fracturing or breaking down coal, stone, earth, and similar materials.

50 of 1914.—James Caine: Means for cleaning sewers, drains, and like conduits.

1,107 of 1914.—John Shanks: Waste and overflow fittings for baths, lavatories, sinks, and the like.

1,660 of 1914.—Charles Pickard: Ferro-concrete roof gutter.

5,551 of 1914.—Samuel Hayes: Machines for moulding from cement and other plastic materials, artificial slates, tiles, sheets, slabs, or the like, for roofing and other purposes.

7,210 of 1914.—Guy Bennett Waite: Reinforced concrete buildings.

10,735 of 1914.—Robert Brown: Lavatory basins, baths, and the like, and waste fittings therefor.

12,582 of 1914.—William Pike Gibbons and Charles John McEwen: Firegrates for gas-producer furnaces.

15,230 of 1914.—Paul Carl Brenner: Door-operating devices.

16,730 of 1914.—Frank Wilford Mellowes and Herbert Foulston: Roof glazing.

PRICES CURRENT OF MATERIALS.

[Owing to the exceptional circumstances now prevail at the present time, prices of materials should be confirmed by inquiry.]

***** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the highest or lowest. Quality and quantity obviously affect price—a fact which should be remembered by those who make use of this information.**

BRICKS, &c.

	Per 1000 Alongside, in River.	£ s. d.
Best Stocks		1 14 6
Picked Stocks for Facings		2 10 0

Per 1000, Delivered at Railway Depôt.	£ s. d.		£ s. d.
Flettons	1 14 0	Best Blue Pressed Staffordshire	3 15 0
Best Fareham Red	2 12 0	Do. Bullnose	4 0 0
Best Red Pressed Ruabon Facing	5 0 0	Best Stourbridge Fire Bricks	4 0 0
GLAZED BRICKS—			
Best White, Ivory, and Salt Glazed Stretchers	12 0 0	Double Headers	15 10 0
Headers	12 10 0	One Side and two Ends	19 10 0
Quoins, Bullnose and 4½ in. Plats	16 10 0	Two Sides and one End	20 10 0
D'ble Str'ch'rs	18 10 0	Splays and Squints	18 0 0

Second Quality £1 10s. per 1000 less than best.

	s. d.	
Thames and Pit Sand	7 3	per yard, delivered.
Thames Ballast	5 0	" "
Best Portland Cement	37 0	per ton, "
Best Ground Blue Lias Lime	20 0	" "

NOTE—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime ..... 14s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 0d. per ton, at rly dpt.

STONE.

Per Ft. Cube.

	s. d.
BATH STONE—delivered on road waggons, Paddington Depôt	1 7½
Do. do. delivered on road waggons, Nine Elms Depôt	1 9½
PORTLAND STONE (22 ft. average)—	
Brown Whitbed, delivered on road waggons, Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 4½
White Basebed, delivered on road waggons Paddington Depôt, Nine Elms Depôt, or Pimlico Wharf	2 6½

Per Ft. Cube, delivered at Railway Depôt.	s. d.		s. d.
Ancaster in blocks	1 10	Closeburn Red Freestone	2 0
Bost in blocks	1 6	Red Mansfield Freestone	2 4
Groenshill in blocks	1 10	Tadcaster Grey Stone	2 4
Darley Dale in blocks	2 4		
Red Corsehill in blocks	2 3		

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

STONE (*Continued*).

YORK STONE—*Robin Hood Quality.*

Per Ft. Cube, Delivered at Railway Depôt. s. d.
Scappled random blocks 2 10

Per Ft. Super., Delivered at Railway Depôt.
6 in. sawn two sides landings to sizes (under 40 ft. super.) 2 8
6 in. rubbed two sides ditto, ditto 2 6
3 in. sawn two sides slabs (random sizes) 0 11½
2 in. to 2½ in. sawn one side slabs (random sizes) 0 7
1½ in. to 2 in. ditto, ditto 0 6

HARD YORK—
Per Ft. Cube, Delivered at Railway Depôt.
Scappled random blocks 3 0

Per Ft. Super., Delivered at Railway Depôt.
6 in. sawn two sides landing to sizes (under 40 ft. super.) 2 8
6 in. rubbed two sides ditto 3 0
3 in. sawn two sides slabs (random sizes) 1 2
2 in. self-faced random flags 0 5

SLATES.

Per 1000 of 1200 at Railway Depôt.

In. In.	£ s. d.	In. In.	£ s. d.
20 x 10 best blue Rangor	13 2 6	20 x 10 best Eureka unfading green..	15 17 6
20 x 12 ditto ..	13 17 6	20 x 12 ditto ..	18 7 6
20 x 10 1st q'lity ditto	13 0 0	18 x 10 ditto ..	13 5 0
20 x 12 ditto ..	13 15 0	16 x 8 ditto ..	10 5 0
16 x 8 ditto ..	7 5 0	20 x 10 permanent green	12 12 6
22 x 10 best blue Portmadoc ..	12 12 6	18 x 10 ditto ..	10 12 6
16 x 8 ditto ..	6 12 6	16 x 8 ditto ..	7 12 6

TILES.

At Railway Depôt.

	s. d.		s. d.
Best plain red roofing (per 1000) ..	42 0	Best "Hartshill" brand, plain sand-faced (per 1000) .	45 0
Hip and Valley (per doz.) ..	3 7	Do. pressed (per 1000)	42 6
Best Broseley (per 1000)	50 0	Do. Ornamental (per 1000)	47 6
Do. Ornamental (per 1000)	52 6	Hip (per doz.) .	4 0
Hip and Valley (per doz.) ..	4 0	Valley (per doz)	3 6
Best Ruabon red, brown, or brindle (Edw'ds)(per1000)	57 6	Staffords. (Hanley) Reds or Brindled (per 1000)	42 6
Do. Ornamental(per 1000)	60 0	Hand-made sand-faced (per1000)	45 0
Hip (per doz.) .	4 0	Hip (per doz.) .	4 0
Valley(per doz)	3 0	Valley(per doz)	3 6

WOOD.

BUILDING WOOD.	At per standard. £ s. d.	£ s. d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in...	17 5 0 ..	18 15 0
Deals: best 3 in. by 9 in.	17 5 0 ..	18 5 0
Battens: best 2½ in. by 7 in. and 3 in., and 3 in. by 7 in. and 6 in.	14 12 6 ..	15 12 6
Battens: best 2½ by 6 and 3 by 6	0 10 0	less than 7 in. and 8 in.
Deals: seconds	1 0 0	less than best
Battens: seconds	0 10 0 "	"
2 in. by 4 in. and 2 in. by 6 in.	13 5 0 ..	14 5 0
2 in. by 4½ in. and 2 in. by 5 in.	12 2 6 ..	13 2 6
Foreign Sawn Boards— 1 in. and 1½ in. by 7 in.....	0 10 0	more than battens.
½ in.	1 0 0	"
Fir timber: best middling Danzig or Memel (average specification)	At per load of 50 ft. 6 0 0 ..	7 5 0
Seconds	5 7 6 ..	6 17 6
Small timber (8 in. to 10 in.)	4 12 6 ..	4 17 6
Small timber (6 in. to 8 in.)	3 17 6 ..	4 5 0
Swedish balks.....	3 5 0 ..	3 12 6
Pitch-pine timber (50 ft. average.....	7 10 0 ..	8 10 0

JOINERS' WOOD.	At per standard.	
White Sea: first yellow deals, 3 in. by 11 in.....	29 15 0 ..	31 0 0
3 in. by 9 in.	27 12 6 ..	29 0 0
Battens, 2½ in. and 3 in. by 7 in.	21 5 0 ..	22 5 0
Second yellow deals, 3 in. by 11 in.	24 15 0 ..	25 15 0
Do. 3 in. by 9 in.	23 0 0 ..	24 0 0
Battens, 2½ in. and 3 in. by 7 in.	17 5 0 ..	18 5 0
Third yellow deals, 3 in. by 11 in. and 9 in.	18 5 0 ..	19 5 0
Battens, 2½ in. and 3 in. by 7 in.....	16 0 0 ..	17 0 0
Petersburg: first yellow deals, 3 in. by 11 in.....	26 10 0 ..	27 10 0
Do. 3 in. by 9 in.	23 0 0 ..	24 0 0
Battens	17 5 0 ..	18 5 0
Second yellow deals, 3 in. by 11 in.	19 5 0 ..	20 5 0
Do. 3 in. by 9 in.....	18 7 6 ..	19 7 6
Battens	— ..	—
Third yellow deals, 3 in. by 11 in.	16 0 0 ..	17 0 0
Do. 3 in. by 9 in.....	15 10 0 ..	16 10 0
Battens	13 5 0 ..	14 5 0
White Sea and Petersburg— First white deals, 3 in. by 11 in.	19 5 0 ..	20 5 0
First white deals, 3 in. by 9 in.	17 2 6 ..	18 2 6
Battens	15 0 0 ..	15 10 0
Second white deals, 3 in. by 11 in.	17 2 6 ..	18 2 6
Second white deals, 3 in. by 9 in.	15 0 0 ..	16 0 0
Battens	13 15 0 ..	14 5 0
Pitch-pine: deals	30 15 0 ..	32 15 0
Under 2 in. thick extra..	0 10 0 ..	1 0 0

WOOD (*Continued*).

JOINERS' WOOD (*Continued*)—	At per standard. £ s. d.	£ s. d.
Columbian or Oregon Pine, best quality.....	26 0 0 ..	28 0 0
Yellow Pine—First, regular sizes	54 0 0	upwards.
Oddments	37 0 0	"
Seconds, regular sizes.....	38 10 0	"
Oddments	33 0 0	"
Kauri Pine—Planks per ft. cube	0 6 6 ..	0 7 6
Danzig and Stettin Oak Logs— Large, per ft. cube.....	0 4 0 ..	0 5 0
Small " "	0 3 6 ..	0 4 0
Wainscot Oak Logs, per ft. cube	0 9 6 ..	0 11 0
Dry Wainscot Oak, per ft. super. as inch	0 0 11 ..	0 1 3
½ in. do. do.....	0 0 10 ..	0 0 11
Dry Mahogany — Honduras, Tabasco, per ft. super. as inch	0 0 11 ..	0 1 4
Selected, Figury, per ft. super. as inch	0 1 6 ..	0 2 6
Cuba Mahogany	0 1 6 ..	0 2 0
Dry Walnut, American, per ft. super. as inch	0 0 11 ..	upwards. 0 1 3
French, "Italian," Walnut ..	0 0 11 ..	0 1 6
Teak, per load (Rangoon or Moulmein)	28 0 0 ..	34 0 0
Do., do. (Java)	24 0 0 ..	27 0 0
American Whitewood planks, per ft. cube	0 6 6 ..	0 7 6

Prepared Flooring, etc.—	Per square. £ s. d.	£ s. d.
1 in. by 7 in. yellow, planed and shot	0 15 6 ..	0 18 0
1 in. by 7 in. yellow, planed and matched	0 16 0 ..	0 19 0
1¼ in. by 7 in. yellow, planed and matched	0 18 6 ..	1 3 0
1 in. by 7 in. white, planed and shot	0 15 0 ..	0 17 0
1 in. by 7 in. white, planed and matched	0 15 6 ..	0 17 6
1¼ in. by 7 in. white, planed and matched	0 17 6 ..	0 19 6
½ in. by 7 in. yellow, matched and beaded or V-jointed boards.....	0 13 6 ..	0 16 0
1 in. by 7 in. " "	0 16 0 ..	0 19 6
½ in. by 7 in. white .. "	0 13 0 ..	0 15 0
1 in. by 7 in. " "	0 15 6 ..	0 16 6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London or delivered Railway Vans, per ton. £ s. d.	£ s. d.
Rolled Steel Joists, ordinary sections	9 10 0 ..	10 10 0
Compound Girders, ordinary sections	12 0 0 ..	13 0 0
Steel Compound Stanchions..	13 0 0 ..	15 0 0
Angles, Tees, and Channels ordinary sections.....	12 0 0 ..	13 0 0
Flitch Plates	12 0 0 ..	13 0 0
Cast Iron Columns & Stanchions, including ordinary patterns	9 0 0 ..	10 0 0

METALS.

IRON—	Per ton, in London. £ s. d.	£ s. d.
Common Bars	9 10 0 ..	10 0 0
Staffordshire Crown Bars, good merchant quality ..	9 15 0 ..	10 5 0
Staffordshire "Marked Bars"	11 10 0 ..	—
Mild Steel Bars	9 15 0 ..	10 5 0
Hoop Iron, basis price	10 10 0 ..	—
" " Galvanised	18 10 0 ..	—

(* And upwards, according to size and gauge.)

Sheet Iron Black— Ordinary sizes to 20 g.	10 15 0 ..	—
" " 24 g.	11 15 0 ..	—
" " 26 g.	13 5 0 ..	—
Sheet Iron, Galvanised, flat, ordinary quality— Ordinary sizes, 6 ft. by 2 ft. to 3 ft. to 20 g.	16 0 0 ..	—
Ordinary sizes to 22 g. and 24 g.	16 10 0 ..	—
Ordinary sizes to 26 g.	17 10 0 ..	—
Sheet Iron, Galvanised, flat, best quality— Ordinary sizes to 20 g.	18 10 0 ..	—
" " 22 g. and 24 g.	19 0 0 ..	—
Ordinary sizes to 26 g.	20 0 0 ..	—
Galvanised Corrugated Sheets— Ordinary sizes, 6 ft. to 8 ft. 20 g.	15 0 0 ..	—
Ordinary sizes, 22 g. and 24 g.	16 0 0 ..	—
Ordinary sizes, 26 g.	17 0 0 ..	—
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. to 20 g. and thicker	13 0 0 ..	—
Best Soft Steel Sheets, 22 g. & 24 g.	14 0 0 ..	—
Best Soft Steel Sheets, 26 g...	16 0 0 ..	—
Cut Nails, 3 in. to 6 in.....	13 0 0 ..	13 10 0

(Under 3 in., usual trade extras.)

LEAD, &c.

Delivered in London.

	£ s. d.	£ s. d.
LEAD—Sheet, English, 4 lb. and up	23 10 0 ..	—
Pipe in coils.....	24 0 0 ..	—
Soil pipe	27 0 0 ..	—
Compo pipe	27 0 0 ..	—
ZINC— Sheet—	In casks of 10 cwt. 50 0 0 ..	—
COPPER— Strong Sheet ..... per lb.	0 1 2 ..	—
Thin " ..... "	0 1 2 ..	—
Copper nails..... "	0 1 2 ..	—
Copper wire..... "	0 1 2 ..	—

LEAD, &c. (*Continued*).

Delivered in London.

	£ s. d.	£ s. d.
BRASS— Strong Sheet ..... per lb.	0 1 2 ..	—
Thin ..... "	0 1 3 ..	—
TIN—English Ingots .. "	0 1 6 ..	—
SOLDER—Plumbers' .. "	0 0 9 ..	—
Tinmen's ..... "	0 1 0 ..	—
Blowpipe ..... "	0 1 3 ..	—

ENGLISH SHEET GLASS IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

15 oz. thirds	4d.	26 oz. fourths	5½d.
" fourths	3½d.	32 oz. thirds	8d.
21 oz. thirds	6d.	" fourths	9½d.
" fourths	5d.	Fluted Sheet, 15 oz.	4½d.
26 oz. thirds	6½d.	" 21 oz.	5½d.

ENGLISH ROLLED PLATE IN CRATES OF STOCK SIZES.*

Per Ft. Delivered.

¼ Rolled plate	2½d.
¼ Rough rolled and rough cast plate	3d.
¼ Rough rolled and rough cast plate.....	3½d.
Figured Rolled, Oxford Rolled, Oceanic, Arctic, Muffled, and Rolled Cathedral, white.....	4d.
Ditto, tinted	5½d.

* Not less than two crates.

OILS, &c.		£ s. d.
Raw Linseed Oil in pipes	per gallon	0 2 1
" " " in barrels	"	0 2 2
" " " in drums	"	0 2 4
Boiled " " in barrels.....	"	0 2 5
" " " in drums	"	0 2 6
Turpentine in barrels	"	0 2 11
" in drums	"	0 3 2
Genuine Ground English White Lead, per ton (In not less than 5 cwt. casks.)		30 15 0
Red Lead, Dry	per ton	29 10 0
Best Linseed Oil Putty	per cwt.	0 10 0
Stockholm Tar	per barrel	1 12 0

VARNISHES, &c.	Per gallon. £ s. d.
Fine Pale Oak Varnish.....	0 8 0
Pale Copal Oak	0 10 6
Superfine Pale Elastic Oak.....	0 12 6
Fine Extra Hard Church Oak	0 10 0
Superfine Hard-drying Oak, for seats of Churches	0 14 6
Fine Elastic Carriage	0 12 9
Superfine Pale Elastic Carriage	0 16 0
Fine Pale Maple	0 10 0
Finest Pale Durable Copal	0 18 6
Extra Pale French Oil.....	1 1 0
Eggshell Flating Varnish.....	0 18 0
White Pale Enamel	1 4 0
Extra Pale Paper.....	0 12 0
Best Japan Gold Size	0 10 0
Best Black Japan.....	0 16 0
Oak and Mahogany Stain	0 9 0
Brunswick Black	0 8 0
Berlin Black	0 16 0
Knotting	0 10 6
French and Brush Polish.....	0 10 0

[Owing to the exceptional circumstances which prevail at the present time, prices of materials should be confirmed by inquiry.]

TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 6 p.m. on *Wednesday*. [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.* unless in some exceptional cases and for special reasons.]

*Denotes *accepted*. †Denotes *provisionally accepted*.

BISHOP'S CASTLE.—Alterations and extensions to the lock-up, for the Shropshire County Council :—
W. E. Sherratt £356

CHIPPENHAM.—Erection of houses for filters, etc., at sewage works, for the Corporation :—
Sims & Sons, Colne* £128 10

CROYDON.—Installing hot-water services in eight schoolkeepers' houses, for the Croydon Education Committee :—
Hammond & Hussey, Ltd., Croydon* ... £118 10

EXETER.—Alterations to premises, for the Exeter Board of Guardians :—

Nos. 46 *and* 47, *Southernhay West.*

F. D. Francis.....	£2,122 1 3
Soper & Ayres	2,072 0 9
G. Setter & Son	2,043 10 0
Ham & Passmore.....	1,930 0 0
Westcott, Austin. & White.....	1,710 9 0
W. G. Cole, Alphington*.....	1,627 18 8
Dart & Francis (part only)	297 0 0

No. 9, *Lower Summerlands.*

F. D. Francis.....	£890	3 3	Soper & Ayres... £720 0 0
G. Setter & Son..	850	0 0	J. H. Lake..... 707 12 0
E. H. Westcott	840	0 0	Westcott, Austin,
Ham & Passmore	800	0 0	& White 677 0 0
J. Stephens	734	10 0	

EDINBURGH.—For various trades required in connection with the reconstruction of No. 1, Milnes-court, Lawnmarket, for the Town Council. Mr. James A. Williamson, A.R.I.B.A., City Architect, Edinburgh. Quantities by Mr. Boyce M. Fraser, 78, Queen-street, Edinburgh :—

Mason, Joiner, Steel, and Slater Works.
J. Scott & Brown, 3, Barclay-place* £1,411

Plaster and Cement.
J. A. McLauchlan, Annandale St. Lane* 301

Plumber Work.
Mills & Donald, 46, East London-street* 335

FULWOOD.—For erection of a new cottage at the hospital in Sandy-lane, Fulwood, for the Preston, Fulwood, and Longridge Joint Hospital District. Quantities by Mr. W. D. T. Munford, architect, 12, Guildhall-street, Preston:—

T. Kay & Son	£469 10 8
T. Cottam	453 0 0
Rimmer & Walker	439 0 0
J. Cartwell & Sons, Ltd.	425 : 6
T. & R. Colley, Longridge, near Preston*	392 19 4

HATFIELD.—Alterations at police-station, for the Hertfordshire County Council:—

W. J. Richardson* £379

HERTFORD.—For providing and laying pipes, etc., for the Corporation:—

W. & C. French, Buckhurst Hill* ... £332 18 6

KIRKCONNEL.—For works of water supply, for the local authority:—

Laying Main.

J. Richie, Dunfermline* £2,682 11 10

Mechanical Filters and Filtration Plant.

Paterson's Engineering Co., Ltd.* £370 0 0

Reinforced Concrete Tank.

Gray's Ferro-Concrete Contracting Co., Ltd.* £479 10 0

LEICESTER.—For alterations and additions to No. 7, Belgrave-gate, for the Tramways and Electricity Committee of the Corporation of Leicester. Messrs. Harding & Williams, architects, 13, New-street, Leicester, and at Hinckley. Quantities by the architects:—

J. E. Johnson & Son	£1,135 0	Bowles & Son	£1,073 0
W. Stanger	1,125 0	Clarke & Garrett	1,070 0
J. Cole & Sons	1,108 10	Hardington & Elliott	1,070 0
W. Sharp & Son	1,097 0	Bradshaw Bros.	1,069 0
Chitham & Co., Ltd.	1,093 0	J. Bentley & Co.	1,066 0
W. H. Foulds	1,084 0	W. Potter, Blaby*	1,030 16
J. Chapman & Sons, Ltd.	1,079 0	Bradford & Son‡	899 0

[Architect's estimate, £1,076.]
‡ Withdrawn.

LINGFIELD.—For the erection of Sewage Works Manager's cottage, Lingfield, for the Rural District Council of Godstone. Mr. T. C. Barralet, Surveyor:—

Gorham	£491	Stanford	£369
Dives	478	Cooper	367
Everitt	458	Gasson	367
Johnson	438	North Downs Building Co.	363
Midmer	434	Honour	353
Head Bros.	396	Sanderson	329
Payne	372		

[Surveyor's estimate, £343 10s. 6d.]

LINGFIELD.—For the construction of 200 yds. of 9-in. sewer and three manholes at Lingfield, for the Rural District Council of Godstone. Mr. T. C. Barralet, Surveyor:—

Everitt	£128	Payne	£101
Yewen	125	Stanford	98
Dives	115	Head Bros.	94
Honour	115	May, Mortimer, & Co.	91
North Downs Building Co.	115	Cooper	65
Gorham	106	Sanderson	60

[Surveyor's estimate, £91 17s. 6d.]

LEYTON.—For the internal painting and cleansing of two schools, for the Education Committee of the Leyton Urban District Council. Mr. William Jacques, A.R.I.B.A., 2, Fen-court, London, E.C., Architect to the Committee:—

Davies-lane School.

C. Hare & Co.	£737 0	J. Scott-Fenn	£475 0
F. J. Coxhead	695 0	H. C. Horswill	435 0
J. Vigor & Co.	591 0	W. J. Clemens	430 10
G. H. Smith	519 0	C. J. Kemp	397 10
S. Blow, Ltd.	500 0	R. Woollaston & Co.*	358 0
A. H. Inns	467 0		

Harrow Green School.

Jarman & Martin	£530	J. Scott-Fenn	£325
C. Hare & Co.	455	W. J. Clemens	310
J. Vigor & Co.	444	R. Woollaston & Co.	306
S. Blow, Ltd.	351	C. J. Kemp	305
A. H. Inns	335	H. C. Horswill*	287

LEYTON.—For the improvements to heating, Mayville-road Schools, for the Education Committee of the Leyton Urban District Council. Mr. William Jacques, A.R.I.B.A., 2, Fen-court, London, E.C., Architect to the Committee:—

A. & C. Bridgland, Ltd.	£257 0	F. J. Coxhead	£197 15
Whitbys, Ltd.	225 0	F. Davies*	185 0

LITTLEHAMPTON. — Alterations at East-street School, for the West Sussex Education Committee:—

Snewin Bros., Littlehampton* £1,498

LONDON.—For electric light installations at three schools, for the London County Council Education Committee:—

*Defries & Goldman, Albion House, New Oxford-street, Victoria School, Hammersmith, £270; Woolmore-street School, Poplar, £210; Senior-street School, Paddington, £375.

LOSTWITHIEL.—For alterations and additions to Breddock School, West Taphouse, near Lostwithiel. Mr. A. E. Skentelbery, architect, Lostwithiel:—

Runnalls & Sons	£390
Elliott & Son, Liskeard*	375

MAIDSTONE.—For repairs and decorations to the workhouse, for the Board of Guardians:—

	Repairs.	Decorations.
R. Corben & Co	£79 0	£117 0*
G. Pearce & Son	49 0*	—
Cruttenden & Son	—	142 0
Elmore & Son	81 15	124 17
Cox Bros.	79 0	130 0
T. H. Miller	—	145 0
J. Crundwell	—	128 10
C. A. Wilter	—	170 0

MACCLESFIELD.—For alterations to the Old Modern School premises, for the Education Committee:—

G. Roylance & Co., Ltd.* £1,190

MACCLESFIELD.—For fitting up kitchen for feeding centre, for the Education Committee:—

G. Roylance & Co., Ltd.* £330

MANSFIELD.—For erection of three fever pavilions and additions to administrative block of the Southwell-road Hospital, Mansfield. Quantities by Mr. T. P. Collinge, Borough Surveyor, Exchange-row, Mansfield:—

A. R. Roe	£4,600	Vallance & Blythe	£4,394
C. G. Percival & Son	4,500	Parks & Son, Ltd.	4,375
J. Beckett	4,398	R. Moore	4,339
Lombard, Rogers, & Brooks	4,396	J. Harvey	4,250
C. Vallance & Son	4,395	J. Greenwood*	4,188

[All of Mansfield.]

RADLETT.—For High Bridge, for Hertfordshire County Council. Mr. J. S. Killick, A.M.Inst.C.E., County Surveyor, Hatfield:—

C. Miskin & Sons	£1,025 0 0
H. Williams	874 7 10
G. Wiggs & Sons	845 0 0
A. & S. Hyslop	770 0 0
O. P. Draves & Son	772 15 11
G. Henson & Sons	768 15 6
W. Wright, Chesham*	739 9 3

RHYMNEY.—For sewerage works, for the Rhymney Valley Sewerage Board:—

Barnes, Chaplin, & Co., Cardiff* ... £32,702 6 3

TAVISTOCK.—For sewage disposal works at Lydford, for the Tavistock Rural District Council:—

H. R. Petherick, Lydford* £713 5 4

WINDSOR.—For ground work in connection with baths extension, for the Corporation:—

May, Mortimer, & Co. £104 13

WOLSTANTON.—Alterations at Basford Hall, for the Wolstanton and Burslem Board of Guardians:—

J. T. Sambrook, Burslem* £331

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